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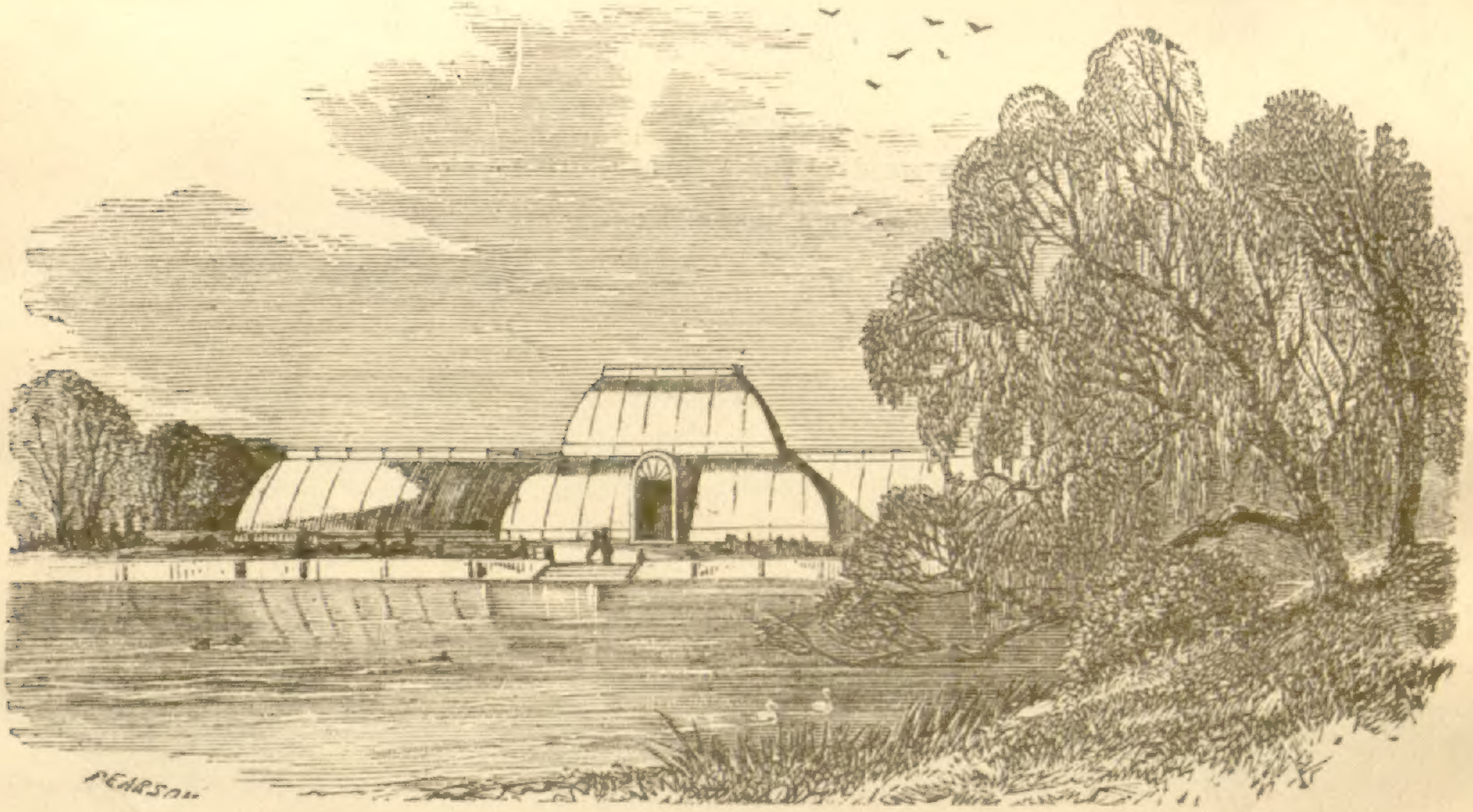

"A brave old house! a garden full of bees,
Large dropping poppies, and queen hollyhocks
With butterflies for crowns—tree peonies
And pinks and goldilocks.
* * * * * * *
"Then saunter down that terrace whence the sea
All fair with wing-like sails you may discern;
Be glad, and say, 'This beauty is for me—
A thing to love and learn.'"

JEAN INGELOW.

Mo. Bot. Garden.
1894

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Palazzo Orengo, La Mortola, Ventimiglia.

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Dear Mr. Hanbury,
Sincerely yours,

J. D. HOOKER.

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Tab. 7272.

NEMESIA strumosa.

Native of the Cape of Good Hope.

Nat. Ord. Scrophularineæ.—Tribe Hemimerideæ.

Genus Nemesia, *Vent.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 931).

Nemesia strumosa; herbacea, erecta, basi ramosa, caule 4-gono, foliis radicalibus oblongis oblanceolatisve acuminatis remote serratis caulinis linearibus, racemis multifloris glanduloso-pilosis, bracteis linearibus, floribus amplis longe pedicellatis versicoloribus, calycis laciniis linearibus obtusis, corolla basi saccata, limbi lobo inferiore latiore quam longo emarginato intus barbato, superiore multo minore 3-lobo lobis oblongis rotundatisve.

N. strumosa, *Benth. in Hook. Comp. Bot. Mag.* vol. ii. p. 18; *in DC. Prodr.* vol. x. p. 260. *Journ. Hort. Soc. Ser.* 3, vol. xxv. (1892) p. 107, fig. 16. *Gard. Chron.* (1892) vol. ii. p. 269, fig. 48.

Antirrhinum strumosum, *Soland.* in *Herb. Banks.*

It is difficult to understand how it has come to pass that so beautiful a plant as that here figured should be a native of the Cape of Good Hope within fifty miles of Cape Town, and should never till now have been introduced into this country. I can only suppose that it may have improved greatly under cultivation in England, and that native grown specimens are less attractive; to which must be added the general neglect of Cape of Good Hope plants amongst horticulturists, and the apathy in late years of collectors in that region; for whilst beautiful and interesting novelties are constantly arriving from Port Elizabeth, Natal, and the Transvaal, *Disa grandiflora* seems to be the only plant worth sending for to the Cape. Mr. N. E. Brown, in his excellent account of this plant ("Gardener's Chronicle," l. c.), observes that the variation in colour of the flowers is one of its most interesting features. Of these variations there are sixteen well marked, exhibiting an extraordinary range, from white to primrose yellow, orange, rose and deep red. In some the colour is nearly uniform throughout the upper surface of both lips of the corolla, in others of the red or orange series the throat is

more or less sulphur or golden yellow, whilst in a few it shows dark bluish spots. The outer surfaces of the tube and of the lips are very much paler than the interior, and often streaked with red. It is singular that, though the species shows such protean hues, the individual plants, in so far as has been observed, have all their flowers coloured alike. It might have been supposed that cross-fertilization, in a plant so attractive to insects as this must be, would have led to the flowers of individual plants differing *inter se*.

Another curious feature of this plant is that the colours of the flowers are retained in perfection during the process of drying for the Herbarium, and for at least four months afterwards. As an instance, the specimens here figured were put into drying paper in the beginning of August last, and up to this date (December 8th) they have lost none of their brilliancy. On the other hand, of the old Herbarium specimens none have retained a trace of their colour.

N. strumosa has been known to botanists for upwards of a century. Mr. E. G. Baker, referring to the materials in the British Museum, kindly informs me, that the Banksian specimens are from F. Masson, and are labelled simply Prom. v. Spei., and named *Antirrhinum strumosum* in Solander's handwriting. The flowers vary much in size. There is also a specimen of Thunberg's. In the Kew Herbarium there are specimens from Thom, Zeyher, Drege, and Wallich. The specimens here figured were raised from seeds procured at Saldanha Bay, by Messrs. Sutton and Sons of Reading, who sent them to Kew to be named. —*J. D. H.*

Fig. 1, Calyx; 2, corolla; 3, base of corolla and stamens; 4, two stamens. 5, ovary; 6, young capsule; 7, seed:—*all enlarged.*

2

3

4

1

M S. del. J N. Fitch lith

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Tab. 7273.

EPIDENDRUM SPONDIADUM.

Native of Jamaica and Costa Rica.

Nat. Ord. Orchideæ. Tribe Epidendreæ.

Genus Epidendrum, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 528.)

Epidendrum (Osmophytum) *spondiadum*; pseudobulbis elongato-fusiformibus teretiusculis 1-foliatis, folio ligulato obtuso, pedunculo brevi crasso erecto paucifloro basi vaginis 2 oblongis flavis instructo, bracteis parvis triangularibus, floribus breviter crasse pedicellatis erectis aureis rubro irroratis, sepalis lanceolatis acutis, petalis spathulato-ovatis acutis, labello columnæ crassæ adnato late cordato apiculato disco 2-calloso, capsula globoso-oblonga hexaptera.

E. spondiadum, *Reichb. f. in Bot. Zeit.* vol. x. (1852) p. 731.

E. variegatum, *Hart in Gard. Chron.* (1886) vol. ii. p. 11 (*non Hook.*).

I am indebted to Mr. Morris, F.L.S., Assistant-Director of Kew, for the following information respecting *E. spondiadum*:—"This is a rare Orchid in Jamaica, and is apparently confined to elevations of about four thousand feet in the Blue Mountains. The first specimens were gathered in 1881, were cultivated in the Government Cinchona Plantations and regarded as a Jamaican form of *E. variegatum*, from which it is evidently quite different. The specimen figured was noticed by me in flower at Whitfield Hall, Jamaica, in February, 1891; and was given me for Kew by Mr. Spencer Heaven. I found it in flower at Kew on my return from the West Indies in the same year, and it has now (February, 1892) flowered again. A note on the self-fertilization of the species (under the name of *E. variegatum*) is given by Mr. Hart, Superintendent of the Cinchona Plantations, in the 'Gardener's Chronicle' (cited above). The true *E. variegatum* has not been found in Jamaica, in recent years at least, and I am led to doubt its occurrence there." With regard to this last statement, it is to be observed that Lindley ("Fol. Orchid.") gives Jamaica as a habitat for *variegatum*, misled by a specimen labelled as from that country in "Herb. Hook." but

which really came from New Grenada. The true *E. variegatum*, which has green flowers with dark spots, has a very wide distribution from Brazil and Peru to Cuba, if indeed all the plants included by Lindley under this name are really conspecific.

Mr. Hart's note above referred to is important; he finds that the lip exerts a pressure on the underside of the column whilst the anther is held in its place by the horns of the latter. The pollinia during enlargement within the anther-case distend laterally inwards, and thus come into contact with the stigma. If the lip is displaced it returns to its position in contact with the column, with so strong a spring that none but a very large insect could effect this. No flower had failed to be fertilized, the anther always remaining attached to the column.

For the identification of the Jamaican plant with *E. spondiadum*, a native of Costa Rica, where it was discovered by Warszewicz growing on trees of *Spondias*, I am indebted to Mr. Rolfe and Mr. Morris, who made a very careful examination of its flowers with a solitary one of Reichenbach's type of *E. spondiadum* which is contained in Lindley's Herbarium. Complete specimens of the latter, with leaves and pseudobulbs, may reveal differences, but there is nothing in Reichenbach's description that indicates any.

The plant here figured was brought from Jamaica by Mr. Morris in 1891, and flowered in the Royal Gardens in February of last year.—*J. D. H.*

Fig. 1, Back of column and base of lip; 2, front of column and anther 3, anther case viewed from within:—*all enlarged.*

M.S. del, J.N. Fitch lith.

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Tab. 7274.

CARALLUMA campanulata.

Native of Ceylon.

Nat. Ord. Asclepiadeæ.—Tribe

Genus Caralluma, *R. Br.* (*N.E. Br. in Hook. Ic. Pl.* vol. xx. (*Stapel. Barkl.* p. 7.)

Caralluma *campanulata;* ramis ascendentibus tetraquetris ad ⅔ poll. diam. pallide viridibus angulis crenatis, crenis foliis minutis serratis instructis, floribus in umbellam terminalem dispositis longiuscule pedicellatis, sepalis lanceolatis subserrulatis, corolla 1 poll. diam. limbo plano velutino nudo saturate rubro-brunneo, lobis late ovatis acutis eciliolatis, corona exteriore 2-partita segmentis falcatis acutis, interioris lobis 5 simplicibus integris v. 3-dentatis antheras incumbentibus.

C. campanulata, *N. E. Br. in Gard. Chron.* 1892, ii. p. 369, fig. 61.

Boucerosia campanulata, *Wight Ic. Pl. Ind. Or.* t. 1287.

B. umbellata, *Thwaites Enum. Pl. Zeyl.* p. 209; *Trimen Syst. Cat. Pl. Ceylon,* p. 57.

B. umbellata, *var.?* campanulata, *Hook. f. Fl. Brit. Ind.* vol. iv. p. 77.

In the Flora of British India, when treating of the species of *Boucerosia*, I found it impossible to describe them and those of *Caralluma* satisfactorily, from the fragmentary specimens in the Herbarium, and I stated that I was dependent for their characters and limitation mainly upon published and unpublished drawings and definitions. In respect of *B. campanulata*, I found that Thwaites, a most competent authority, had included it under *B. umbellata*, not even considering it a variety; but after giving due weight to the observations of Wight, who knew both species, I thought it a safer course to regard it as a variety, giving Wight's characters of the thinner angles of the stem and more tubular corolla which wants the brown base of *umbellata*, to which I added that according to Herbarium specimens the flowers of *campanulata* are smaller and the lobes of the corona narrower. Since that period, now ten years ago, the species of *Boucerosia* and *Caralluma* have been submitted to a searching examination by Mr. N. E. Brown, founded on living specimens, with the result that these two genera must be merged into one,

Caralluma, with thirty-eight species. The genus is scattered over an area of the Old World extending from Spain and Northern and Southern Africa to Arabia and Northern and Western India, twelve species being British Indian.

Wight gave no habitat of his *B. campanulata*, nor did he know its origin. His drawing was made from a dried specimen in his Herbarium, now at Kew, and was in all probability received from Ceylon, where (under the name of *umbellata*) Thwaites says it grows on rocks near Kornegalle. It is not known from Continental India.

The plant here figured was received from the Royal Botanic Gardens of Peradeniya in 1890, and flowered in the Succulent House, at Kew, in July, 1892.—*J. D. H.*

Fig. 1, Portion of angle of stem and leaf; 2, calyx; 3, column seen from above; 4, lobe of inner corona; 5, pollinia:—*all greatly enlarged.*

M.S. del, J.N. Fitch lith

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Tab. 7275.

CYPRIPEDIUM fasciculatum.

Var. Pusillum.

Native of North-West America.

Nat. Ord. Orchideæ. Tribe Cypripedieæ.

Genus Cypripedium, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 634).

Cypripedium (Diphylleæ); caule scapo pedicellisque glanduloso-pilosis, foliis elliptico-oblongis rotundatisve obtusis membranaceis subtus parce pilosis, floribus subcorymbosis parvulis glabris, bracteis ovarium superantibus lanceolatis glabris, sepalis patulis ovato-lanceolatis acuminatis extus fusco-purpureis intus aureis rubro striatis, lateralibus ad apices connatis, petalis sepalis consimilibus, labello stramineo fere globoso sepalis dimidio breviore, ore semicirculari, columna brevi, staminodio anguste trulliforme subtrilobo ciliolato.

C. fasciculatum, *Kellog ex S. Wats. in Proc. Am. Acad.* vol. xvii. (1882), p. 380; and in *Garden and Florist*, vi. p. 90, f. 16.

Var. *pusillum;* minus, foliis crassioribus, nervis obscuris. C. pusillum, *Rolfe in Kew Bullet.* No. 69 (*Sept.*, 1892), p. 211; *in Gard. Chron.* 1892, vol. ii. p. 364.

A very interesting little species as being the only one of the two-leaved section with opposite membranous leaves, hitherto discovered, which bears more than one flower. Of the other species of this section one alone is American, *C. acaule*, a very widely spread plant in the United States and Canada, and which is one of the earlier introduced exotic orchids, being figured at t. 192 of this work, just a century ago. All the others are Asiatic, and include *C. elegans*, Reichb. f. from the borbers of Tibet and the Sikkim Himalaya; *C. margaritaceum*, Franchet, from Western China; *C. Henryi*, Rolfe (in Kew Bullet.) from Hupeh in China; *C. debile*, Reichb. f. from Japan; and the most singular of all, *C. japonicum*, Thunb., with flabelliform leaves having flabellate nerves, a plant more deserving of cultivation than any of the preceding.

C. fasciculatum was discovered on the banks of the White Salmon River, above the falls, in Washington Territory, by W. N. Suksdorf, in 1880; and has since

been found at Prattville, Plumas County, California, by Mr. R. M. Austin, and elsewhere in the same state.

I have sought in vain for other characters than those given whereby to distinguish *C. pusillum* from it.

The specimens of var. *pusillum* figured were purchased for the Royal Gardens, Kew, at an auction-sale of Messrs. Protheroe and Morris, in May of last year, and flowered on the 14th of the same month, the flowers, which are fragrant, lasting only three days. Specimens have also been received from Mr. Elwes, of Colesborne Park, Chelтenham. In neither case was the native country known, but there is a report that this was Florida, a most improbable habitat for a mountain plant of the western shore of the American continent.—*J. D. H.*

Fig. 1, Front, and 2, side view of lip and column; 3, front, and 4, side view of column:—*all enlarged.*

M S del, J N Fitch lith.

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Tab. 7276.

IRIS Hookeriana.

Native of the Western Himalaya.

Nat. Ord. Irideæ.—Tribe Moræeæ.

Genus Iris, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 686.)

Iris (Pseudevansia) *Hookeriana;* rhizomate breviter repente, foliis linearibus pallide viridibus nervis validis, pedunculo brevi monocephalo foliis pluribus vaginantibus prædito, spathæ bifloræ valvis oblongo-lanceolatis subscariosis ventricosis, pedicello brevi, perianthii tubo breviter producto, limbo saturate lilacino, segmentis exterioribus obovato-cuneatis variegatis dimidio superiori patulis conspicue barbatis obscure cristatis, interioribus angustioribus erectis apice conspicue emarginatis, styli cristis magnis deltoideis, filamentis brevibus, fructu parvo oblongo-trigono, seminibus strophiolatis.

I. Hookeriana, *Foster in Gard. Chron.* 1887, vol. i. p. 611; *Hook. f. Fl. Brit. Ind.* vol. vi. p. 275; *Baker, Handb. Irid.* p. 25.

Several of the Himalayan Irises belong to the small group which I have called *Pseudevansia*, which differs from the true bearded Irises (section *Pogoniris*) by having a well-developed beard down the claw of the three outer segments, arising from a rudimentary crest. The present species and *I. Duthiei*, Foster, which was described at the same time in the "Gardener's Chronicle," are very nearly allied to the widely-spread *I. kumaonensis*, Wallich, from which I cannot distinguish specifically *I. Kingii*, Foster (Bot. Mag. tab. 6957). The present plant was obtained from Lahul by Herr Max Leichtlin, from the Moravian missionaries who have done so much to work out the botany of that Himalayan province. It was sent by Leichtlin to Professor Foster in 1884, and our drawing was made from a plant which he flowered in May, 1892, the developed leaves being added in July. I have not been able to identify it with any of the Indian species in the Kew Herbarium.

Descr. *Rootstock* less fleshy than in the bearded Irises. *Leaves* erect, linear, pale green, strongly ribbed, not fully developed till long after the flower has faded. *Peduncle*

short, simple, nearly hidden by its short sheathing leaves. *Spathes* two-flowered; valves three, oblong-lanceolate, pale green, subscariose, very ventricose; pedicel short. *Ovary* oblong-trigonous, half an inch long. *Perianth-tube* slender, under an inch long; limb bright lilac, one and a half or two inches long; outer segments obovate-cuneate, spreading from the middle in the expanded flower; blade dark lilac, variegated with paler lilac; claw whitish, with violet veins; beard of white hairs, tipped with yellow, springing from an obscure crest; inner segments narrower, rather shorter, paler, erect, conspicuously emarginate. *Style* crests large, deltoid. *Anthers* linear; filaments short. *Capsule* small, oblong-trigonal, rostrate. *Seeds* with a small but conspicuous arillode.—*J. G. Baker.*

Fig. 1, Front view of anther; 2, back view of anther; 3, apex of style, with crests:—*all enlarged.*

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Tab. 7272.—NEMESIA STRUMOSA.

„ 7274.—CAVALLUMA CAMPANULATA

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STEVENSONIA GRANDIFOLIA.

Native of the Seychelle Islands.

Nat. Ord. Palmeæ.—Tribe Arecæ.

Genus Stevensonia, *Duncan*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 908).

Stevensonia *grandifolia*; *Duncan, Cat. Hort. Maurit.* 87, *nomen*; *Balf. f. in Baker Fl. Maurit.* 388; *J. Smith, Records of the Royal Botanical Gardens, Kew*, 114; *Official Guide to the North Gallery, Kew*, Ed. 5, Nos. 467, 470, 478, 495.

Phœnicophorium sechellarum, *H. Wendl. in Illustr. Hortic.* vol. xii. p. 433 (young plant) and *Misc.* 5; *Kerchove, Les Palmiers*, p. 327.

Areca sechellarum, *Hort.*

Astrocaryum Borsignianum and aureo-pictum, *Hort.*

The Seychelle Islands are, for their area, quite unique in respect of the number of endemic genera and species of Palms which they contain, all their species being in this category, as are all the genera but one, *Acanthophœnix*, which is otherwise confined to the Mauritian group of islands. Moreover, these endemic genera, of which there are five, are all of them monotypic; they are the famous "Double Cocoa nut," *Lodoicea sechellarum*, Labill. (see Tab. 2734-8 of this work), the nearest ally of which is the *Borassus flagellifer*, Linn., a native of tropical Africa, and abundant (though doubtless introduced) in India. The remainder all belong to the large tribe of *Arecæ*; namely, *Nephrosperma van Houtteana*, Balf. f.; *Roscheria melanochætes*, Wendl., the "Latanier Hanbaum," of the islanders; *Verschaffeltia splendida*, Wendl., the "Latte"; and the subject of this plate, the "Latanier feuillé." The endemic *Acanthophœnix* is the *Deckenia alba*, Wendl., which Mr. Horne, the late Government Botanist in the Mauritius, informs me is referable to the first-named genus, and will therefore bear the name of *Acantho-*

phœnix alba, Horne; it is the "Choux Palmiste" of the islanders.

The Island of Mauritius, with its dependency Rodriguez, contains more endemic species of Palms than the Seychelles do, but fewer genera, namely, nine species under four genera, two of them under *Acanthophœnix*, which genus, as before observed, is common to the Seychelles.

The history of the introduction of *Stevensonia* is thus given by the late J. Smith, for many years Curator of the Royal Gardens, Kew:—"This fine Palm was discovered on Round Island, one of the Seychelle group, by Mr. J. Duncan, Director of the Mauritius Botanic Gardens. It was growing in marshy places. In 1855 he sent three plants to Kew under the name of *Latania aurea*, but afterwards finding it to be a distinct genus, he gave it the name of *Sterensonia*, in compliment to the then Governor of Mauritius, who favoured his botanical excursions to the different islands. In 1857 Mr. Wendland, Director of the Royal Gardens Herrenhausen, Hanover, visited Kew, and was anxious to obtain a plant of this rare Palm; I had marked one of the plants for him, and on taking him to the nursery pits to show it to him, it was not to be found. This led to a strict inquiry, and it was found that it had been stolen by a German gardener then employed in the Gardens, and it afterwards appeared in a private garden in Berlin; and some years ago I heard that it had grown to be a fine plant. Mr. Wendland, being a writer on Palms, set aside the name *Stevensonia*, and substituted for it *Phœnicophorium*, which means the thief Palm, which I consider was not justified, and also that it was a very undigified name for such a noble Palm, and founded on such an ignoble circumstance." The name *Sterensonia* had from the first been retained in all the "Kew Guides," as it was in 1877 by Balfour in Baker's "Flora of Mauritius," with the observation that "the name *Phœnicophorium* . . . invented for the purpose of commemorating the disgraceful fact of this Palm having been stolen from Kew by a foreign *employé* should surely be suppressed;" and it is so in the "Genera Plantarum," published in 1883.

Stevensonia is common in all the Islands of the Seychelle group, attaining a height of forty to fifty feet; the species here figured is probably one of the original plants men-

tioned above, and had attained twelve feet before flowering, which it did for the first time in September of last year, in the Palm House of the Royal Gardens. The plant is in its mature state wholly destitute of spines, whereas in the young state the deep orange-red petioles are clothed with black needle-like spines one to three inches long, and the young leaves are orange beneath and mottled with orange brown spots above. The difference in these respects between the old and young plants is so great that Mr. Watson observes that it is hardly credible that they form but one species.

Descr. *Trunk* slender, at first clothed with long spines, at length unarmed, ringed, dark brown, twenty-two inches in girth, twelve feet high to the base of the lowest sheath, and to the top of the foliage twenty-four feet. *Leaves* spreading and recurved, blade seven feet long by six broad, cuneate-obovate or oblong, shortly bifid, deeply laciniate on the margin from a quarter to one-third way down between numerous nerves, pale green above when old, of a bright coppery orange when young beneath, and bright red-brown when dying; laciniæ ensiform, acutely unequally two to four-fid at the apex, many nerved; midrib slender, bearing here and there linear horizontal brown peltate scales one-third to one-half inch long; petiole three feet long and costa semiterete, gradually narrowed into a sheath two to three feet long, which is hoary, scaly and spiny when young. *Spadix* three to six feet long, axillary, ovoid, laxly branched, golden yellow, as are the flowers; branches one to one and a half feet long, slender, erecto-patent, tumid at the base, clothed throughout with flowers. *Peduncle* one and a half to three feet long. *Spathes* two, lower twelve to eighteen inches long, persistent, bristly, upper two to three and a half feet, clavate, woody, deciduous. *Flowers* ternate, a female between two males, or the uppermost on the branches male. *Male fl.* a quarter inch broad when expanded; sepals imbricate, minute, reniform; petals ovate-lanceolate, acute, valvate, coriaceous. *Stamens* fifteen to twenty, inserted at the base of the perianth, filaments subulate, anthers linear, base deeply cleft. *Fem. fl.* minute, globose, somewhat enlarged after flowering; sepals orbicular, concave, coriaceous, broadly imbricating; petals larger, orbicular, imbricate, with short

valvate tips. *Ovary* ovoid, two-celled, stigma sessile trifid, ovule parietal. *Drupe* small, flattened on one side, about a third of an inch long; stigma subbasilar; mesocarp thin, fibrous; endocarp crustaceous. *Seeds* ovoid, ascending, raphe loosely reticulate; albumen deeply ruminate; embryo subbasilar.—*J. D. H.*

Figs. 1 and 2, Peltate scales from under-surface of leaf; 3, portion of branch of spadix with male and fem. flowers; 4, male fl.; 5, the same laid open; 6, stamen; 7, portion of branch of spadix and fem. fl.; 8, young male fl.; 9, portion of branch of spadix and fem. fl.; 10, ovary and staminodes:—*all greatly enlarged.*

M.S. del. J.N. Fitch. lith

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Tab. 7278.

COCCOCYPSELUM HIRSUTUM.

Native of Mexico, Central America and Trinidad.

Nat. Ord. Rubiaceæ.—Tribe Mussændeæ.

Genus Coccocypselum, *P. Br.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 73.)

Coccocypselum *hirsutum*; undique patentim hirsutum, caulibus prostratis dein adscendentibus, foliis longiuscule petiolatis late ovatis ovato-rotundatisve obtusis v. subacutis basi rotundatis supra convexis viridibus nervis numerosis impressis subtus purpurascentibus nervis validis, stipulis setaceis, pedunculis petiolis longioribus, capitulis 6–8-floris, floribus sessilibus, bracteis calyci subæquilongis, calycis dentibus lineari-lanceolatis erectis, corolla pallide violacea tubo calyce duplo longiore, lobis oblongis, bacca ellipsoidea saturate violacea hirsuta calycis dentibus subulatis coronata, seminibus papillosis.

C. hirsutum, *Bartl. in Herb. Haenke, ex DC. Prodr.* vol. iv. p. 396; *Benth. in Vidensk. Meddil. Kiöbenhavn* (1852) p. 51; *Walp. Ann.* vol. v. p. 133.

C. repens, *E. Morren, Belg. Hortic.* vol. x. (1860) p. 194, t. xiii., xiv., fig. 3–5 (*non Swartz*).

C. discolor, *Hort.*

Coccocypselum hirsutum has been cultivated for many years at Kew, latterly under the name of *C. discolor*, and was probably received from Trinidad at an early period. In 1860 it was figured by Morren in the Belgique Horticole, probably from specimens sent from Kew, as *C. repens*, Sw., a totally different species, described by Swartz as having pubescent leaves, a very short flowering peduncle and subsessile axillary flowers. To add to this source of confusion, the habitats of *C. repens*, Jamaica and San Domingo, taken from De Candolle, are attributed to *hirsutum*, which has never been found in either locality. The latter is a native of Mexico, Costa Rica, and Trinidad, and probably other places in the Spanish Main. It flowers in the Royal Gardens at most seasons, and its beautiful leaves are very persistent. Mr. Watson grows it in baskets suspended from the roof of a stove, where it forms a very attractive object, from the colour of the stems

and leaves. It is the second species figured in this work, the first being *C. campanuliflorum* (Hedyotis campanuliflora, Hook., Tab. 2840). About twenty others have been described, all natives of tropical America. The genus hardly differs from *Hedgotis* except in the baccate fruit.—*J. D. H.*

Fig. 1, Flowers with the corolla removed; 2, corolla laid open; 3 and 4, stamens; 5, ovary laid open; 6, seed:—*all enlarged.*

John Allen, del. J.N. Fitch, lith.

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Tab. 7279.

MAMMILLARIA prismatica.

Native of Mexico.

Nat. Ord. Cacteæ. Tribe Echinocacteæ.

Genus Mammillaria, *Haw.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 84).

Mammillaria (Anhalonium) *prismatica*; acaulis, tuberculis radicalibus 1 poll. latis spiraliter imbricatis crusta cartilaginea tenui opace glauco obductis late deltoideis obtusis v. retusis marginibus rotundatis, superioribus basi foliaceo-applanatis superne incrassatis trigonis acutis deltoideo retusis integerrimis apicibus in plantis juvenculis (rarissime in maturis) pulverigeris, axillis lanatis, floribus terminalibus basi lana copiosa velatis.

M. (Anhalonium) prismatica, *Hemsl. in Biol. Centr. Amer. Bot.* vol. i. p. 519 (*excl. citat.*).

M. aloides, *Monv. Cat.* 1846, *ex Labour. Monog. Cact.* p. 153.

M. (Anhalonium) retusa, *Mittl. Man. Amat. Cact.* p. 11, *ex Labour l. c.*

Anhalonium prismaticum, *Lem. Cact. Hort. Monv.* 1839, p. 1; *in Hortic. Univers.* t. 30; *in Berlin Gartenz.* (1835), p. 541, fig. 126; *Les Cactees*, p. 41; *Labouret. Monog. Cact.* (1847), p. 153; *Salm. Dyck. Cact. Hort. Dyck.* pp. 5, 77.

A. retusum, *Salm Dyck. l. c.* p. 5.

Ariocarpus retusus, *Scheidw. in. Bull. Acad. Brux* vi. (1839), p. 88; *in Hortic. Belg.* (1838)), p. 377; *et in Ann. Sc. Nat.* vol. x. (1838), p. 125.

The genus *Anhalonium*, founded by Lemaire (Cact. Gen. Nov. and sp. Hort. Monv. p. 1) in 1839, on certain species of *Mammillaria* with naked tubercles, and the flowers formed on the terminal tubercles, was reduced by Engelmann, the most learned author on *Cacteæ*, to a section of the latter genus, in his account of the species of the Order collected during the progress of the United States and Mexican boundary survey under the command of Lieut-Col. Emory. Under the only species there described, *M. fissurata*, Engelm., p. 18, t. 17, Dr. Engelmann says of the *Anhalonia*: "These very curious plants, some of them looking more like some *Aloe* than like a *Cactus*, can nevertheless not be separated from *Mammillaria*. The seed is the only part of the organs of fructification which seems to me to offer any character, by having a hard roughly tubercled testa in ours, as well as in another Mexican species which I had the opportunity to examine. Our species

* V. (1838) p. 492. — (e. H.T.)

(and probably all the others) have the flower and fruit sessile upon the lower part of the tubercle, and elevated above the axil, much as in *M. macromeris;* but unlike that plant, the lower part of the tubercle is entirely distinct from the upper one."

The species represented on Plate 7279 a good deal resembles that of Engelmann's *M. fissurata*, but is a very much larger plant, the tubercles are not so ovate, are perfectly smooth (not warted and fissured), and the perianth is larger and longer.

As the propriety of adopting the specific name (*M. prismatica*) here employed may be traversed from being founded on an erroneous citation of Lemaire's Hort. Univ., I should add, that I think it has better claim for adoption than the earlier of *M. retusa* and *M. aloides*, as being more significant, as the first given to the species, and as being everywhere recognized where *Cacti* have been growing or studied for upwards of half a century.

About a dozen species of Mammillaria have been referred to *Anhalonium*, all natives of Andean regions, from Northern Mexico, southward to Peru. *M. prismatica* was discovered in 1838 by Galeotti, near San Louis de Potosi, in Mexico, at an elevation of seven thousand to eleven thousand feet. The specimen here figured flowered in the Succulent House of the Royal Gardens in September, 1889, when the flowers were, as represented, pure white; but they are described as rose-coloured by Salm Dyck. The specimen was purchased from C. Runge, of St. Antonio, Texas, in 1888.—*J. D. H.*

Fig. 1, Flower; 2, petal:—*both slightly enlarged.*

M.S. del. J.N.Fitch, lith.

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Tab. 7280.

TRITONIA ROSEA.

Native of the Cape Colony and Natal.

Nat. Ord. Irideæ.—Tribe Gladioleæ.

Genus Tritonia, *Ker*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 708).

Tritonia *rosea*; cormo globoso tunicis fibrosis, foliis basalibus 5–6 linearibus glabris elongatis, caule elato gracili tereti sæpissime profunde furcato. spicis laxis 6–8-floris subsecundis, spathæ valvis inæqualibus. exterior. majori oblongo scarioso interiori minori membranaceo tricuspidatoi perianthio roseo tubo brevi infundibulari lobis oblongis tubo 2–3-plo longioribus 3 inferioribus ore flavo maculato, staminibus perianthio duplo brevioribus.

T. rosea, *Klatt in Linnæa*, vol. xxxii. p. 760. *Baker Handb. Irid.* p. 194.
Montbretia rosea, *Baker in Journ. Linn. Soc.* vol. xvi. p. 169.

These Tritonias are more like Ixias in habit than Gladioli, and they have the same short scariose spathe-valves, but they differ from *Ixia* and *Sparaxis* in their unilateral stamens. *Tritonia* is a genus of twenty-six species, but we seldom see any of them in cultivation, except *T. crocata* (Ixia crocata, Bot. Mag., tab. 184) and *T. Pottsii* (Bot. Mag., tab. 6722). The present plant has a range extending through the eastern provinces of the Cape Colony from Uitenhage northward to Natal. It has been in cultivation for many years, and at Kew is found to stand the winter when planted in an open border facing the south. Our drawing was made from a plant that flowered at Kew in September, 1891.

Descr. *Corm* globose, about an inch in diameter; outer tunics brown, formed of matted parallel fibres. Basal *leaves* five or six, linear, erect, glabrous, firm, green, one or two feet long, with thick straw-coloured ribs and edges. *Stem* slender, terete, overtopping the leaves, usually deeply forked. *Spikes* lax, subsecund; outer spathe-valves oblong, scariose, a quarter of an inch long; inner smaller,

membranous, bicuspidate. *Perianth* rose-red ; tube funnel-shaped, as long as the spathe ; lobes oblong, obtuse, nearly an inch long, the three lower with a spade-shaped yellow blotch at the throat. *Stamens* not more than half as long as the perianth, anthers linear. *Style* just overtopping the anthers, branches spreading. *Capsule* small, oblong-trigonous.—*J. G. Baker.*

Fig. 1, The stamens ; 2, a single anther ; 3, pistil, with inner spathe-valve : —*all enlarged.*

M.S.del,J.N.Fitch,lith.

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1881.

Tab. 7281.

TRICHOPILIA SANGUINOLENTA.

Native of Equador.

Nat. Ord. Orchideæ. Tribe Vandeæ.

Genus Trichopilia, *Lindl.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 559.)

Trichopilia *sanguinolenta*; pseudobulbis ovoideis lævibus, folio petiolato ovato- v. lineari-oblongo subacuto, pedunculo folio breviore robusto 1-floro vaginis 3 tubulosis elongatis instructo. sepalis petalisque linearioblongis subacutis flavo-olivaceis fusco-sanguineo maculatis, labello oblongo apice bifido lobis divaricatis. lateribus erectis crispatis albidis marginibus sanguineo transverse striolatis, disco carnoso albido basi 2-calloso velutino. ima basi 2-auriculato. auriculis aureis erosis columnæ lateribus adnatis, columna tereti. clinandrio dorso fimbriato.

T. sanguinea, *Reichb. f. Xen. Orchid.* vol. ii. p. 106, t. 131.

Helcia sanguinea, *Lindl. Bot. Reg.* vol. xxxi. (1845), *misc.* p. 17; *in Paxt. Fl. Gard.* vol. ii. p. 97, fig. 182; *Walp. Ann.* vol. vi. p. 682.

Trichopilia sanguinolenta, though long known in cultivation, has never been re-found in a native state since its discovery by Hartweg in the Andes of Ecuador, half a century ago; and the only native specimen in existence is Hartweg's, preserved in Lindley's Herbarium (now at Kew). From it Lindley made the drawing published in the form of a wood-cut in Paxton's Magazine, as *Helcia sanguinolenta*, which fairly represents the plant (considering that it was made from a dried specimen), though the sepals are shorter broader and more obovate than in either the original specimen or in that now figured. The genus *Helcia* was founded on an erroneous view of the insertion of the lip, the basal lobes of which Lindley supposed to be free from the column, and not, as they really are, adnate to it. This was pointed out first by Reichenbach, in his Xenia Orchidacea, where he gives a very inaccurate representation of the plant, omitting the sheaths on the peduncle (which he describes as naked), and adding analyses that are little better than caricatures. The sepals and petals are represented as green, obtuse, with large rings of brown, and the lip as stained in the middle and sides with violet streaks

and spots. The figure is no doubt chiefly made up from cut specimens of flowers with the top of the peduncle above the uppermost sheath, procured from Consul Schiller, and from memory for colours.

T. sanguinolenta has been for many years in cultivation at Kew, and as in other orchid establishments, no doubt owes its parentage to the original specimen sent to the Royal Horticultural Gardens by Hartweg in 1845. It flowers in the cool Orchid House in January. The leaves vary much in form and size, and the lip somewhat in form. In a specimen from Kew, preserved in the Herbarium, in February, 1878, the leaf is linear-oblong, seven inches long by one and a half broad, with a petiole nearly an inch long, the peduncle is six inches long, and the terminal third of the lip is much broader and more obscurely lobed. —*J. D. H.*

Fig. 1. Base of lip and column, side view; 2, front view of the same; 3, pollinium:—*all enlarged.*

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Tab. 7282.

RHAPHIDOPHORA DECURSIVA.

Native of India.

Nat. Ord. Aroideæ. Tribe Calleæ.

Genus Rhaphidophora, *Schott.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 992.)

Rhaphidophora *decursiva*; alte scandens, foliis oblongis pinnatisectis segmentis utrinque 12–16 subæqualibus lineari-oblongis oblique acuminatis v. cuspidatis rectis v. sursum curvis 1–2-costatis et nervis 1–2 utrinque percursis, petiolo gracili basi vaginante, pedunculo petiolo multo breviore et crassiore, spatha 8-pollicari cylindracea longe acuminata demum fulva base subtruncata, spadice cylindraceo diam. pollicis, ovario prismatio vertice truncato, stylo conico, stigmate disciforme.

R. decursiva, *Schott in Bonpland.* vol. v. (1857), p. 45; *Prodr. Syst. Aroid.* p. 385, *Engl. in DC. Monog. Phanerog.* vol. ii. p. 247.

R. grandis, *Schott. in Œstr. Bot. Zeitschr.* viii. (1858) p. 349; *Prodr. Syst. Aroid.* p. 386.

R. eximia, *Schott. in Bonpland.* v. (1857) 45; *Prodr.* 387.

Scindapsus decursivus, *Schott. & Endl. Meletem.* vol. i. p. 21; *Kunth. Enum. Pl.* vol. iii. p. 62; *Wight Ic. Pl. Ind. Or.* t. 779; *Miq. Fl. Ind. Bat.* vol. iii. p. 186; *Thwaites Enum. Pl. Zeylan.* p. 336; *Ender. Ind. Aroid.* p. 73.

Monstera decursiva, *Schott in Wien. Zeitschr.* vol. iv. (1830) p. 1028.

M. multijuga & trijuga, *C. Koch, ex Ender. Ind. Aroid.* 73.

Pothos decursiva, *Roxb. Fl. Ind.* vol. i. p. 436; *Wall. Pl. As. Rar.* vol. ii. p. 83, t. 192.

The bole of a great tree in an Indian forest clothed for many feet upwards in this gigantic climber, is one of the most striking objects that the vegetable kingdom displays. Its great trunk, as thick as the arm, hidden by the leaves, sends out innumerable strong horizontal roots like whip-cords that adhere closely to the bark of its supports, and the glossy green leaves, from their abundance and pendulous position, often completely hide the latter. I shall never forget the first occasion on which I saw this noble Aroid. I was skirting the edge of the magnificent forest that then clothed the base of the Sikkim Himalaya (now, I believe, replaced by tea plantations); twilight had just commenced, and I had scarcely realized the scene, when the Cicadas burst into full cry (it is impossible to call it song) with

startling effect, sound and scene combining to herald my advance into, to me, a new world of interest and botanical excitement.

R. decursiva has a very extensive range in India, commencing in the Eastern Himalaya, probably in Eastern Nepal; it follows that range into Assam, the Khasia and other hills of Eastern Bengal, ascending to about four thousand feet. I find no record of its existence in Burma and the Malayan Peninsula, nor in Central India or the Western Ghats, but it reappears in Ceylon at an elevation of two thousand to four thousand feet, and, according to Miquel, it is a native of Java.

The figure here given is from a plant in the Palm House of Kew, that has attained a height of about thirty feet; clothing the trunk of a large *Liristona*, which was in all probability obtained from the Royal Botanic Gardens of Calcutta.—*J. D. H.*

Fig. 1, Flower; 2, stamen; 3, ovary; 4, vertical, and 5, transverse section of ditto; 6, ovule:—*all enlarged;* 7, leaf, *one-fifth of the natural size.*

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Tab. 7283.

BULBOPHYLLUM comosum.

Native of Burma.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Bulbophyllum, *Thou.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 501.)

Bulbophyllum (Racemosæ) *comosum*; pseudobulbis magnis globoso-ovoideis sulcatis, foliis binis proter-anthiis pseudobulbo immaturo evolutis cito caducis lineari-oblongis, scapo basi pseudobulbi maturi evoluto valido erecto 2–3-vaginato, racemo deflexo cylindraceo multi-densiflоro, floribus breviter pedicellatis pallide stramineis, bracteis lanceolatis pedicello superantibus, sepalis subæqualibus e basi ovata subulatis (dorsali angustiore) hyalinis pilis cellulosis villosis, petalis parvulis lineari-oblongis acutis 1-nerviis, labello breviter stipitato lanceolato recurvo, columna 2-cornuta.

B. comosum, *Collett & Hemsl. in Hook. f. Fl. Brit. Ind.* vol. v. p. 762; *et in Journ. Lind. Soc.* vol. xxviii. (1890) p. 130, t. 19.

A very remarkable species of a genus which presents species differing extremely in habit, inflorescence, and flowers. It is one of the few in which the pseudobulb bears two leaves, and this when in a very young state. The leaves are more membranous than is usual in the genus, and fall away long before the maturing of the pseudobulb, which latter takes place before the development of the flowering scape from its base. In this respect it resembles the growth of *B. hirtum*, Lindl., of the Himalaya; of *B. gracile*, Par. et Reichb. f.; and of the singular *B. lemniscatum*, Parish (Tab. 5961). In the genus *Cirrhopetalum* the same habit of leafing and flowering is repeated in the Himalayan *C. reflexum*, Zoll., *C. viridiflorum*, Hook. f., and *C. Blepharistes*, Reichb. f. In fact, these seven species might form a natural group or subgenus of the enlarged genus *Bulbophyllum* if were expedient to follow Reichenbach in uniting *Cirrhopetalum* with it; and all the more natural a one because in the length of its dorsal sepal *C. viridiflorum* is one of the few

species of the latter genus which shows a transition to the former. Probably there may be other species of both genera showing the same characters, but until far better materials of both are available it would be rash to found sectional characters on either foliage or flowers.

B. comosum was discovered by General Sir H. Collett, K.C.B. (when serving during the Burmese war), at Muktela, in the Shan Hills, at an elevation of six thousand feet, along with the beautiful *Cirrhopetalum Collettii*, figured at t. 7198. General Collett sent living plants to Kew in 1889, and others (I believe from the same source) have been received from the Royal Botanic Gardens, Calcutta, in 1890. Of the latter the one here figured flowered in January of the present year and formed new leaves in the following July.

The hairs of the sepals which were figured and described in the Linnæan Journal from dried specimens as unicellular, are multicellular, as in fig. 2 of our plate.—*J. D. H.*

Fig. 1, Flowers with the tips of the sepals recurved; 2, hair from the same; 3, petals, lip, and column; 4, front view of column; 5, anther; 6, pollinia:—*all enlarged.*

S del. J.N Fitch lith.

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Tab. 7284.

ARUNDINA BAMBUSAEFOLIA.

Native of the Himalaya.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Arundina, *Blume*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 521).

Arundina *bambusaefolia*; caulibus cæspitosis gracilibus, foliis linearibus 8–12 poll. longis ½–1 poll. latis, racemo laxifloro, floribus roseis, sepalis oblongis acutis, petalis late obovatis acuminatis, labelli ampli lobis saturate roseis crispato-lobulatis lateralibus brevibus, terminali 2-fido lobis rotundatis, disco 3-lamellato, capsula 2–2½ pollicari.

A. bambusaefolia, *Lindl. in Wall. Cat.* n. 3751; *Gen. & Sp. Orchid.* p. 125; *in Bot. Reg.* 1841, *Misc.* p. 2; *in Journ. Linn. Soc.* vol. iii. p. 22; *Wight Ic. Pl. Ind. Or.* t. 1661; *Griffith, Notul.* vol. iii. p. 329, 331; *Ic. Pl. Asiat.* t. 314; *Williams, Orchid. Album*, t. 139; *Veitch Man. Orchid.* pt. vi. p. 77; *Hook. f. Fl. Brit. Ind.* vol. v. p. 857.
Cymbidium bambusaefolium, *Roxb. Fl. Ind.* vol. iii. p. 460.
Bletia graminifolia, *Don Prodr. Fl. Nep.* p. 29.
Limodorum graminifolium, *Buch. Ham. mss.* ex *Don*, l. c.

I think that this is quite the most beautiful terrestrial orchid of Northern India, and I know of no more attractive picture of its kind, than a patch of grass land in the Khasia Hills, adorned with clumps of it in full flower. It is a very variable plant, and of wide distribution in India, extending from Nepal to the Khasia Hills and Chittagong, and it no doubt occurs in the Burmese Hills, though not as yet brought from thence. According to Wight, it is a native of Ceylon and Malabar, that author adding that his figure (t. 1661) was taken from a Ceylon specimen, but the identical specimen is contained in his Herbarium now at Kew, and is marked as from Assam (*Griffith*); and there is no evidence of its being a Malabar plant. It is, however, recorded as Javanese. There is indeed a closely allied Ceylon species, *A. minor*, Lindl., which is more nearly allied to the Chinese and Himalayan *A. chinensis*, but is a much smaller plant, with yellow on the petals and tube of the lip, and a much smaller capsule. A fourth species is *A. densa*, Lindl. (*Bot. Reg.* vol. xxviii. t. 38, *A. densiflora*,

by error, in Fl. Brit. Ind.), a native of the Malayan Peninsula, with more crowded flowers of a much duller colour. It is possible that these four species may all prove to be forms of one. A fifth, *A. revoluta* (Fl. Brit. Ind. vol. v. p. 858), from Perak, in the Malayan Peninsula, appears to be different from any of the above; it has short recurved leaves with strongly revolute margins, white sepals and petals with light red tips, and the lip yellow within with purple lobes tipped with blue.

A. bambusaefolia attains an exceptional height of seven feet amongst long grass, and its stem the thickness of the thumb at the base; its raceme is sometimes branched. The figure is made from a plant in the collection of F. Wigan, Esq., of Clare Lodge, East Sheen, which flowered in October of last year. Mr. Watson informs me that at Kew it flowers in November and December, and that the flowers are very fugacious.—*J. D. H.*

Fig. 1. Side and two front views of column; 3, anther; 4 and 5, pollinia:—*all enlarged.*

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Tab. 7285.

ANTIRRHINUM GLUTINOSUM.

Native of Spain.

Nat. Ord. Scrophularineæ. Tribe Antirrhineæ.

Genus Antirrhinum, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 934).

Antirrhinum (Antirrhinastrum) *glutinosum;* perenne, prostratum, glanduloso-pilosum, ramis fragillimis, foliis alternis breviter petiolatis elliptico-oblongis -ovatisve obtusis utrinque pilosis, sensim in bracteis abeuntibus, floribus majusculis axillaribus erectis modice pedicellatis, calycis segmentis oblongo-linearibus glandulis sessilibus et stipitatis obsessis, corollæ albæ tubo piloso limbo æquilongo, limbi labio superiore erecto bilobo rubro striolato, inferiore paulo latiore, palato magno prominente 2-fido lobulis apice aureis, ovario strigoso, capsula viscida apice subincurva calycem superante.

A. glutinosum, *Boiss. & Reut. Pugill. Pl. Nov.* 1852, p. 82 (*non Brotero*).

A. molle, *Boiss. Voy. Esp.* 747 (*partim*).

A. hispanicum, *Webb It. Hisp.; Benth in DC. Prod.* vol. x., p. 291 *ex parte* (*non Chav. Monog*).

The geographical distribution of the genus *Antirrhinum* is one of the most remarkable of the vegetable kingdom, and as far as I am aware it has not hitherto been brought to notice. Of about fifty-six well-determined species more than half are European, most of them confined to the western half of the continent, the Spanish Peninsula having ten, which are all but peculiar to itself. Three only are found as far East as Asia Minor, Syria, and Arabia respectively, and one, the English *A. Orontium*, reaches North-Western India as a weed of cultivation.* With the exception of two South African species, all the rest, twenty-three in number, are restricted to Western-North America, and almost exclusively to California. None inhabit the Eastern United States, Canada, Mexico proper, or South America. It might have been expected that the

* Mr. Hemsly informs me that the common Snapdragon, *A. majus*, is found in China, but doubtless as a cultivated plant.

very closely allied genus *Linaria*, separated from *Antirrhinum* by the apparently trivial character of the sac of the base of the corolla of the latter being extended in the former into a spur, would have followed the same distribution. But it is not so. *Linaria*, of which there are about two hundred species, has only one North American representative, *L. canadensis*, which is common to the Eastern and Western States, and extends southward into Chili. In the Old World the genus attains its maximum in Southern Europe and Northern Africa, reaching the northern tropic in the latter continent, and the Himalaya in Asia.

Antirrhinum glutinosum is confined to the Sierra Nevada of Spain, where it is found on the walls of the Alhambra, and ascends to two thousand five hundred feet and upwards in the Sierra. Its nearest ally is *P. molle* of the Pyrenees, from which it differs in its long decumbent branches, glandular hairs, and larger broader leaves. It must not be confounded with *A. glutinosum*, Brotero (Linaria filifolia, *Lag.*), also a Spanish plant, which under its original name (of *Antirrhinum*) has escaped the notice of later botanists. The specimen figured was received at the Royal Gardens from Messrs. Backhouse, of York, in July, 1892. It is a perennial, and requires the protection of a frame in winter.—*J. D. H.*

Fig. 1, Calyx and ovary; 2, base of corolla-tubes and stemens; 3, anther; 4, ovary:—*all enlarged.*

M.S. del. J.N. Fitch lith.

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TAB. 7286.

BULBOPHYLLUM PECHEI.

Native of Burma.

Nat. Ord. ORCHIDEÆ.—Tribe EPIDENDREÆ.

Genus BULBOPHYLLUM, *Thou.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 501).

BULBOPHYLLUM (Racemosae) *Pechei*; pseudobulbis ovoideis angulatis, foliis lineari-oblongis lanceolatisve obtusis subtus punctulatis, scapo pseudobulbo longiore valido decurvo spathis tubulosis infundibularibus supra medium laxe vaginato, racemis elongatis sub densifloris, floribus cupreo-rubiginosis, bracteis ovaria æquantibus, sepalo dorsali oblongo-ovato obtuso lateralibus oblique ovatis acutis dimidio breviore, petalis triangularibus aristatis, labelli rubiginosi oblongi auriculis incurvis apice truncatis et denticulatis, columnæ apice bicuspidatae cuspidibus margine denticulatis.

B. Pechei, *Bull Cat.* 1891 (*in Gard. Chron.* 1891, vol. i. p. 676. reimpr.)

B. Pechei belongs to a natural but puzzling group of the genus, natives chiefly of the Eastern Himalaya and Burma, which I have characterized in the Flora of British India (vol. v. p. 760) by the base of the lip having on each side a large incurved auricle. The type of the group, if by this term is to be understood the first published species, is *B. Careyanum*, Spreng., the *Anisopetalum Careyanum* of "Hooker's Exotic Flora," t. 149 (not *B. Careyanum* of this work, t. 4166, which is *B. crassipes*, mihi), a native of the tropical Himalaya, from Nepal eastwards, the Khasia Hills, and of Burma. Of this plant I have said, in the Flora of British India, that I found it impossible to conclude from Herbarium specimens whether there might not be more than one species included under this name, and amongst them the var. *ochracea* (*B. cupreum*, t. 5316 of this work); as also whether *B. crassipes* and *B. sicyobulbon*, Reichb. f., are really distinct from it. To this dilemma *B. Pechei* adds another element, for though presenting most of the characters of all the above it also presents minute differential ones. It is nearest to *B. Careyanum*,

with which it agrees in the pseudobulbs, in the narrow leaves, long dense-flowered raceme, short bracts, forms of sepals and petals, and approximately in the colour of the flowers; but it differs in the unspotted sepals, in the very short acute cusps of the top of the column, and the toothed auricles of the lip. Whether such small differences, of which the only one that can be called structural is that of the column, may well be questioned. It is in its favour that the minute characters of *B. Careyanum* occurs in its very differently coloured variety *ochracea*.

The other species closely allied to *B. Pechei* are:—*B. crassipes*, which differs in its narrow longer ellipsoid pseudobulbs, very short scape, ovoid raceme, yellow flowers speckled with blood red, and entire labellar auricles; *B. cupreum*, Lindl., has a slender scape, lax-flowered raceme, bracts as long as the flowers, acuminate sepals, ovate-lanceolate petals, and slender long columnar spurs. *B. nilgherrense*, Wight (Bot. Mag., t. 5050), has much broader elliptic leaves, a longer lax-flowered raceme and lanceolate columnar spurs; *B. sicyobulbon*, Par. et Reichb. f., has very large conical pseudobulbs, oblong leaves, and linear bracts as long as the flowers. The several other species of the group differ more widely from the above. I need hardly add that it is only by accurate figures that a comparative knowledge of these plants can be obtained.

B. Pechei was received at Kew from the Royal Botanical Garden of Calcutta in 1889, and flowered in January, 1892. I am informed by Mr. Bull, in whose catalogue for 1891 the name first appears, that he received it from Mr. George Peché, a resident in Moulmein.

Fig. 1, Flower; 2, petal; 3, lip and column; 4, lip; 5, column; 6, anther; 7, pollinia:—*all enlarged*.

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Tab. 7287.

CATTLEYA iricolor.

Native of South America.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Cattleya, *Lindl.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 531).

Cattleya *iricolor*; caulibus fusiformi-clavatis demum sulcatis multicostatis monophyllis, folio pedali lineari-oblongo apice emarginato, racemo 2–3-flore, pedunculo brevi robusto spatha oblonga basi obtecto, bracteis brevibus late triangularibus, sepalis lineari-oblanceolatis acutis lateralibus petalisque consimilibus subundulatis lacteis roseo obscure suffusis, labelli tubo longiusculo limbo mediocri tubo paullo latiore, lobis lateralibus brevibus macula sanguinea notatis, terminali late ovato-oblongo obtuso undulato v. subcrispato apice rotundato medio et basin versus sanguineo striato intus aureo striato, columna incurva crassiuscula, apice incurvo cucullato, anthera quadrata 3-loba, connectivo loculo parvo multoties majore apice 2-lobo.

C. iricolor, *Reichb. f. in Gard. Chron.* 1874, vol. ii. p. 162; *Veitch. Man. Orchid.* part ii. (Cattleya and Laelia) p. 40.

A singular interest attaches to this fine plant, in that it is, and has apparently been for many years (it was first published in 1874), the only known specimen in existence, and no one can tell what country it came from. Messrs. Veitch, in their invaluable Manual, say of it: "The only plant ever introduced of this very distinct *Cattleya* was acquired by us many years ago, at one of the Orchid sales at Stevens's rooms, where it was sold without a specific name, and without any information of its origin. The plant is remarkable for the length of its leaves in proportion to the height of its stems."

Unfortunately there is nothing in the character of *C. iricolor* that, by showing a very close affinity with any other species whose native country is known, would serve to indicate its own; and the genus has an immense range, from the middle of Mexico in lat. 20° N., to Ecuador on the Western side of South America, and to South Brazil on the Eastern. And so too have some of the species,

especially *C. labiata*, to a variety of which (*C. Mossiæ*) Reichenbach compares *C. iricolor* in habit of growth, saying, "it looks like a dwarf *C. Mossiæ*." *C. labiata* is found from New Grenada and Guiana in lat. 10° north, to Rio de Janeiro in lat. 23½° south. The variety *Mossiæ*, long considered a species, is, however, confined to the Cordillera of Venezuela. A glance at the figure of it given in Plate 3669 shows pseudobulbs very like those of *C. iricolor*, but quite different flowers. In some respects the leaf and flowers of *C. iricolor* resembles those of *Laelia grandis* (see Plate 5553), but besides the difference of colour and of the pseudobulbs, the four pollinia of *C. iricolor* are absolutely distinctive of its genus. Mr. Rolfe with much reason suggests the Peruvian Amazons as being its native country, relying on its affinity with *C. Rex*, Lindl., of that region.

It is singular that in the colouring of the lip there is some discrepancy between the descriptions of Reichenbach and Veitch, and these again with the figure here given. Thus Reichenbach says of the lip, "it presents a zigzag band of dark orange from the top of one side lobe to the other. There are numerous violet lines both before the orange zigzag line and behind it, and from thence to the base of the lip. The small column is whitish, and has a large violet spot on its front." Veitch's Manual says, "lateral lobes milk-white, with a few purple streaks, a bright purple spot, and an orange blotch near the anterior edge of each; middle lobe white, with a transverse orange-yellow band at the base, on each side of which is a purple blotch.

I am indebted to the Baron Sir John H. W. von Schrœder for the opportunity of figuring for the first time *Cattleya iricolor*, that celebrated orchidophilist being the possessor of, in so far as is known, the only existing specimen of it in the Old World; the drawing was made in May, 1892, the plant exhaling at the time a very strong sweet odour. —*J. D. H.*

Fig. 1, Front, and 2, side views of column; 3 and 4, side and front view of anther; 5, ventral view of the same showing the cells and the stalks of the four pollinia:—*all enlarged.*

A B del. J N Hanbidge

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TAB. 7288.

CAREX BACCANS.*

Native of South-East Asia.

Nat. Ord. CYPERACEÆ. Tribe CARICEÆ.

Genus CAREX, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 1073).

CAREX *baccans;* robusta, foliis bracteisque longis, paniculâ magnâ laxâ oblongâ vel lineari-oblongâ, spicis numerosis longius cylindraceis basi fœmineis apice masculis, glumis fœmineis ovatis acutis sæpissime cuspidatis per totam fere latitudinem longitudinaliter striatis, utriculis ovoideis trigonis gibbosis proventu baccantibus rubris, rostro parvulo brevissimo bifido.

C. baccans, *Nees in Wight Contrib.* [1834] p. 122; *Kunth. Enum.* vol. ii. p. 513; *Thwaites Enum. Pl. Zeyl.* p. 355; *Boott Carex* vol. ii. p. 83, tt. 234, 235, 236, 238, 239; *Bœck. in Linnæa*, vol. xl. [1876] p. 339; *C. B. Clarke in Journ. Linn. Soc.* vol. xxv. [1889] p. 82.

C. curvirostris, *Kunze Suppl. Riedgr.* p. 79, t. 20; *Miq. Fl. Ind. Bat.* vol. iii. p. 350.

C. recurvirostris, *Steud. in Zoll. Verz. Ind. Archip.* Heft ii. p. 60, et *Syn. Pl. Glum.* vol. ii. p. 207.

C. dolicophylla, *Link. ms.* (fide Bœckeler).

This plant extends from North East India to Ceylon, Malaya, Tonkin, China, and the Philippines. It is plentiful at an altitude of two thousand five hundred to seven thousand feet, in Sikkim, and the whole Khasi range. Here, as in the Kew plant-houses, when fully ripe it is a prominent and unmistakable plant. Till the utricles are more than half-ripe it is exceedingly difficult to distinguish it from some Himalayan forms of *C. Myosurus*, Nees (C. floribunda, *Bœck*), and it may be doubted if even Boott has sorted all the imperfectly-ripe herbarium material aright. Probably the best character for this purpose is the broad not striated edge of the female glume

* I am indebted to my friend, Mr. C. B. Clarke, who is engaged upon a monograph of the whole Order *Cyperaceæ*, for the above account of *C. baccans*.

APRIL 1ST, 1893.

in *C. Myosurus* (and its subspecies). There is a plant figured by Boott (Carex, t. 237) and marked by him in his herbarium "*C. baccans*, an Var. an sp. nova?" first collected by Sir J. Hooker in the Khasi Hills. In this the ripe utricles get sometimes remarkably red though not at all succulent; but the female glumes are 3–5-nerved close to their keel only, and this var. is perhaps more nearly allied to *C. Myosurus*, Nees, than to *C. baccans*.—*C. B. Clarke.*

Fig. 1, Fem. glume; 2, utricle; 3, the same laid open showing the fruit:—*all enlarged.*

3

4

M.S. del. J.N. Fitch lith.

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Tab. 7289.

SATYRIUM CORIIFOLIUM.

Var. maculatum.

Native of the Cape of Good Hope.

Nat. Ord. Orchideæ.—Tribe Ophrydeæ.

Genus Satyrium, *Ser.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 629.)

Satyrium *coriifolium*; robustum, glaberrimum, foliis rigide coriaceis inferioribus oblongo-lanceolatis patulis, superioribus vaginantibus erectis acutis, spica cylindracea multiflora, bracteis ovato-lanceolatis herbaceis reflexis flores æquantibus v. superantibus, sepalis lateralibus lineari-oblongis subacutis deflexis, dorsali lineari breviore, petalis linearibus obtusis sepalis paullo brevioribus, labello hemispherico inflato v. subgloboso dorso carinato margine apice obtuso recurvo, calcaribus ovarium æquantibus.

S. coriifolium, *Swartz in Köngl. Vetensk. and Handb.* vol. xxi. (1800) p. 216; *Willd. Sp. Pl.* vol. iv. p. 54; *Bot. Reg.* t. 703; *Bot. Mag.* t. 2172; *Bolus Orchids of Cape Penins.* p. 124.

S. erectum, *Lindl. Gen. & Sp. Orchid.* 340 (*non Swartz*).

S. cucullatum, *Lodd. Bot. Cat.* t. 104 (*non Swartz*).

S. aureum, *Paxt. Mag. Bot.* vol. xv. p. 31.

Diplectrum coriifolium, *Pers. Synops.* vol. ii. p. 509; *Poiret, Dict. Bot. Suppl.* vol. ii. p. 489.

Orchis bicurvis, *Linn. Sp. Pl. Ed.* 2, p. 1330.

O. lutea caule purpureo maculato, *Buxb. Cent.* vol. iii. p. 7, t. 10.

Var. *maculatum*; caule viridi, floribus aurantiacis punctis saturatioribus ornatis. *Tab. nostr.* 7289.

Mr. Bolus, in his valuable work cited above, describes the normal form of *S. coriifolium* as one of the commonest species in the Cape Peninsula, on the flats from Rondebosch southward, ascending the mountain sides up to six hundred or seven hundred feet, and extending eastwards to the Knysna river; adding that the insatiable flower-gatherers of Cape Town carry off from the Cape Flats in spring large bunches of the flowers. He describes the flowers as of a clear bright orange, more or less varying to or tinged with a flame-coloured red. This answers well to the colour of the figures in the Botanical Register

and Magazine; but adds that he has seen plants from the Diep river which appeared to be hybrids between *S. corii-folium* and *S. carneum*, and which had salmon-coloured flowers only slightly modified in structure. Mr. Bolus makes no allusion to the duller coloured and spotted flowers of var. *maculatum*, which may possibly prove to be a hybrid.

The lower leaves, which are described by Bolus as oblong-lanceolate and quite glabrous, and which are so in our plant, are figured as broadly elliptic at Plate 2272, and glabrous, but as ciliolate in the Botanical Register.

The specimens figured were communicated by H. J. Elwes, Esq., F.L.S., from his garden at Colesborne, Gloucestershire, in August, 1892. It has also flowered at Kew.—*J. D. H.*

Fig. 1, Ovary, dorsal sepal, petals spurs and column; 2, side view of column; 3, front view of same; 4, pollinium:—*all enlarged.*

3
2
1

Tab. 7290.

ALLIUM KANSUNENSE.

Native of Tibet and Western China.

Nat. Ord. Liliaceæ. Tribe Allieæ.

Genus Allium, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 802.)

Allium (Rhiziridium) *kansunense;* bulbis angustis elongatis dense cæspitosis, e basibus rhizoma gracile gerentibus, tunicis fibrosis, foliis anguste linearibus facie canaliculatis, scapo gracili tereti elongato, umbellis capitatis multifloris, spathâ parva ovata monophylla decidua, pedicellis brevibus, perianthio campanulato cæruleo, segmentis oblongis obtusis diu imbricatis, staminibus perianthio brevioribus, filamentis præsertim exterioribus basi dilatatis obscure tricuspidatis, stylo ovario breviori.

A. kansunense, *Regel Descr. Plant. Nov. Hort. Petrop.* 1889, p. 6.

A. cyaneum var. brachystemon, *Regel in Act. Hort. Petrop.* vol. x. p. 346.

A large number of new species of *Allium* have been discovered during the last twenty years through the explorations of the Russian botanists in Central Asia. The late Dr. Regel published, in 1875, an excellent monograph of the whole genus, and in 1887 he re-worked the whole of the Northern and Central Asian species, of which about two hundred are now known. The present plant is quite hardy and is remarkable for its dense heads of bright blue flowers. In this respect it resembles *A. cæruleum*, Pallas (figured Bot. Reg., vol. xxvi., tab. 51). Its filaments are obscurely tricuspidate at the base, so that botanically it falls into the small group of species that form a connecting link between the two large sections *Rhiziridium* and *Porrum*. The wild specimens in the Kew Herbarium were collected by Przewalski in Northern Tibet and the West Chinese province of Kansu in the Tangut district. Our drawing was made from a plant that flowered at Kew last summer, the bulbs of which were sent to the Royal Gardens by Dr. Regel. It was one of the last plants which he described.

April 1st, 1893.

Descr. *Bulbs* long, narrow, densely crowded, seated on a thread-like remotely bulbilliferous rootstock; outer tunics composed of a dense mass of fibres. *Leaves* three to five to a stem, all arising close together from near the ground, narrow linear, much shorter than the scape, deeply channelled down the face. *Scape* slender, wiry, terete, about a foot long. *Flowers* many, crowded into a dense globose head; spathe small, ovate, membranous, falling when the flowers expand; pedicels shorter than the flowers. *Perianth* permanently campanulate, bright blue, one-sixth of an inch long; segments oblong, obtuse. *Stamens* shorter than the perianth; filaments, especially the outer three, dilated with an obscurely tricuspidate appendage at the base; anthers small, oblong. *Ovary* globose, glabrous; style shorter than the ovary.—*J. G. Baker*.

Fig. 1, A flower; 2, vertical section of a flower, shading stamens; 3, pistil: —*all enlarged.*

M.S. del, J.N. Fitch lith.

Vincent Brooks, Day & Son Imp

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Tab. 7291.

EXARRHENA macrantha.

Native of New Zealand.

Nat. Ord. Boragineæ.—Tribe Borageæ.

Genus Exarrhena, *Br. Prodr. Fl. Austral.* 4957.

Exarrhena *macrantha;* erecta, robusta, hispido-pilosa, caule folioso basi ascendente, foliis radicalibus 2–4-pollicaribus oblongo-lanceolatis in petiolum latum angustatis, caulinis sensim minoribus lineari-oblongis obtusis, cyma sæpissime bifurcata, ramis patenti-recurvis multifloris, floribus sessilibus v. breviter pedicellatis, calycis lineari-oblongi appresse pilosi (pilis rectis) lobis linearibus obtusis, corolla sordide aurantiaca, tubo inferne angusto calyce duplo longiore superne infundibulari, lobis late oblongis obtusis, filamentis filiformibus lobis corollæ triente brevioribus, **stylo longe exserto piloso.**

E. macrantha, *Hook. f. Handb. N. Zeal'd Flora*, p. 295.

The genus *Exarrhena* was established by Brown in 1810, upon a Tasmanian plant, *E. suaveolens*, of which he describes as "a herb with the facies of *Myosotis*, to which it is certainly closely allied, and differs chiefly in the exserted stamens and style." Several species having subsequently been discovered in New Zealand, presenting no further differences from *Myosotis* than *E. suaveolens* did, except in that the filaments were very short in some of them, I, in the Flora of New Zealand, reduced the genus to *Myosotis*, in which I was followed by Bentham in the "Flora Australiensis" (vol. iv., p. 407). Before the publication of the latter work, I had, in the "Handbook of the New Zealand Flora," further additions having been made to *Exarrhena*, re-established it, pointing out the additional character of its large and more campanulate corolla, which however had not satisfied Bentham; and accordingly in the "Genera Plantarum" *Exarrhena* is again merged in *Myosotis*.

The opportunity of having a living species to examine has led me to reinvestigate the matter, and to compare

carefully all the species of *Exarrhena* (of which there are five) with all the New Zealand ones of *Myosotis*, and the result is a character which has been overlooked by Brown and all subsequent authors—that whereas the filaments in *Myosotis* are inserted in the throat of the corolla, some way down below the glands at the mouth of the tube between which the anthers lie (or point), in *Exarrhena* the stamens are inserted at the mouth itself, between the glands, and are therefore wholly exserted. There is great variation in the insertion of the stamens of the New Zealand species of *Myosotis* and in the length of their filaments, much greater than in the European species of the genus, and the anthers are sometimes partially exserted, as in *M. capitata*, but the insertion of the filaments is in all far within the tube. In like manner in *Exarrhena*, the filaments vary greatly in length, but are never inserted between the faucial glands.

Seeds of *M. macrantha* were received at Kew, in 1891, from J. D. Enys, Esq., with the information that they had been collected in the Chatham Islands to the eastward of New Zealand. Plants raised from them flowered in a cold frame in September, 1892. Mr. Watson informs me that they require shade from bright sunlight, otherwise the leaves scorch. In New Zealand the species appear to be common throughout the hills of the southern island, having been collected at an elevation of three thousand to four thousand five hundred feet in various localities from the Nelson province in the north to Otago in the south. It is very sweet scented.—*J. D. H.*

Fig. 1, Calyx and styles; 2, corolla laid open; 3 and 4, stamens; 5, carpels and base of style:—*all enlarged.*

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Tab. 7292.

GLADIOLUS oppositiflorus.

Native of Kaffraria.

Nat. Ord. Irideæ.—Tribe Gladioleæ.

Genus Gladiolus, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 709,

---

Gladiolus *oppositiflorus*; cormo magno globoso tunicis exterioribus brunneis fibrosis, caule stricto robusto erecto 3–4-pedali, foliis ensiformibus glabris caulem vaginantibus venis marginibusque crassis stramineis, floribus perpluribus in spicam sesquipedalem dispositis, spathæ valvis lanceolatis inæqualibus viridibus, perianthii tubo anguste infundibulari bracteis æquilongis, lobis ovatis patulis tubo brevioribus albis purpureo carinatis, tribus inferioribus paulo minoribus, genitalibus perianthio brevioribus.

G. oppositiflorus, *Herb. in Bot. Reg.* 1842, *Misc.* p. 86, No. 98; *Baker in Journ. Linn. Soc.* vol. xvi. p. 176; *Handl. Irid.* p. 218.

I suppose this fine *Gladiolus* to be identical with the *oppositiflorus* of Herbert, about which so much has been written in connection with the garden forms of the genus. Herbert's plant was never figured, and his description is a short one, but there is a specimen in the Kew Herbarium, which was given by Herbert to Sir William Hooker from his garden at Spofforth, near Knaresborough, which leaves little room for doubt that the plant now figured is the same species. Herbert says of *oppositiflorus*, writing in 1842 in the "Botanical Register":—

"A native of Madagascar, where it was found by Forbes, a young man employed some years since as collector by the Horticultural Society. It is also, perhaps, a native of Port Natal. The seeds are very like those of *G. natalensis* in form and colour, and it may be easily mixed with that species. The *G. gandarensis* of gardens is a cross between *G. oppositiflorus* and *natalensis*; so also is the *G. ramosus* of the gardens between *G. oppositiflorus* and *cardinalis* or *cardinali-blandus*.

Van Houtte, who first raised *gandarensis*, stated that it was a hybrid between *G. cardinalis* and *psittacinus*, which is the same as *natalensis*. There can be little doubt that

the idea of the Madagascar origin of the plant is a mistake. Forbes only touched at the south of the island, and the only *Gladiolus* which has been found by recent collectors lives high up amongst the hills of the centre. Writing in 1836 (Amaryllideæ, page 366) Herbert spoke of *oppositiflorus* as a beautiful species, imported, as he understood, from the neighbourhood of the Natal river, and this earlier idea is no doubt correct. He speaks of it again in his classical paper on hybrids, in the second volume of the "Journal of the Horticultural Society," in 1847 (pages 88 and 89).

A dried specimen of the plant here figured was sent to Kew from Transkeian Kaffraria by Professor Macowan in 1878, and several years later that excellent botanist forwarded bulbs, from one of which the plant here raised in the Royal Gardens, Kew, has been drawn.

Descr. *Corm* large, globose; tunics of mottled-brown fibres. Whole plant about five feet high. *Stem* bearing alternately at some space from one another about six erecto-patent ensiform glabrous green leaves of firm texture, of which the largest reaches a length of more than two feet and a breadth of more than an inch. *Spike* dense, a foot or a foot and a half long; spathe valves lanceolate, green, those of the lower flowers an inch and a half or two inches long. *Perianth-tube* narrowly funnel-shaped, two inches long; lobes ovate, much shorter than the tube, white with a keel of mauve-purple, the three lower smaller than the three upper. *Stamens* much shorter than the perianth; anthers large, linear. *Style* overtopping the anthers, with three long spreading branches.—*J. G. Baker.*

Fig. 1, Anther, front view; 2, anther, back view; 3, apex of style and its branches, *all enlarged*; 4, whole plant, *much reduced*.

1
3
4

Tab. 7293.

KNIPHOFIA MODESTA.

Native of Natal and Griqua-land.

Nat. Ord. Liliaceæ. Tribe Hemerocalleæ.

Genus Kniphofia, *Mœnch.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 775).

Kniphofia *modesta;* fibris radicalibus gracilibus firmis cylindricis, foliis paucis linearibus erectis 2–3-pedalibus pallide viridibus facie profunde canaliculatis marginibus lœvibus leviter revolutis, pedunculo gracili foliis breviori, racemo elongato cylindrico subdenso multifloro, floribus superioribus ascendentibus inferioribus deflexis, pedicellis brevissimis, bracteis scariosis superioribus ovatis inferioribus lanceolatis, perianthio infundibulari parvo albo supra ovarium constricto, lobis orbicularibus, genitalibus demum conspicue exsertis.

K. modesta, *Baker in Journ. Bot.* 1889, p. 43; *Gard. Chron.* 1889, vol. ii. p. 588.

This very distinct new species of *Kniphofia* was first discovered in 1884 by Mr. William Tyson on the mountains of Griqua-land East, at an elevation of six thousand feet above sea-level. Soon afterwards it was found in Natal by Mr. J. Medley Wood, A.L.S., Curator of the Botanic Garden at Durban, and sent alive to the Royal Gardens, Kew. It has flowered there in the autumn in a cool conservatory and also in a sheltered border out of doors. With its narrow leaves and small white flowers nothing well can look more different in general aspect from *K. aloides* and the older cultivated kinds. Its nearest ally is *K. pallidiflora*, Baker, a native of the mountains of Madagascar, which has not yet appeared in the Botanical Magazine. It may prove to be the same species as *K. pauciflora*, Kunth, a plant gathered by Drège in Northern Kaffraria, of which I have not been able to see authenticated specimens, but there are several small points in the description which do not agree. Our drawing was made from a plant that flowered at Kew in October, 1892.

Descr. *Root* fibres slender, firm, cylindrical. *Leaves* few in a cluster, linear, pale green, two or three feet long

in the cultivated plant, a quarter of an inch broad low down, tapering gradually to the apex, reflexed in the flowering stage in the upper half, deeply channelled down the face, smooth on the rather reflexed edges. *Peduncle* slender, erect, about two feet long, bearing several scariose lanceolate bract leaves. *Raceme* cylindrical, moderately dense, six to twelve inches long; upper flowers ascending, lower deflexed; pedicels very short; bracts scariose, upper ovate, lower lanceolate. *Perianth* white, funnel-shaped, a third of an inch long, constricted above the ovary; lobes orbicular. *Stamens* and *style* finally much exserted beyond the tip of the perianth-lobes.—*J. G. Baker.*

Fig. 1, Portion of leaf; 2, a flower; 3, front view of anther; 4, back view of anther; 5, pistil:—*all enlarged.*

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Tab. 7294.

ALLIUM cabulicum.

Native of Kabul.

Nat. Ord. Liliaceæ. Tribe Allieæ.

Genus Allium, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 802.)

Allium (Molium) *cabulicum*; bulbo globoso tunicis exterioribus membranaceis, folio solitario lorato-oblongo glabro ad basin sensim angustato, scapo brevi tereti glabro, umbellis multifloris, spathâ monophylla ovata parva decidua, pedicellis strictis elongatis, perianthii segmentis lanceolatis demum reflexis albidis carinâ dorsali rubro-brunnea, staminibus perianthio æquilongis, filamentis æqualibus filiformibus basi ovatis, antheris linearioblongis parvis, ovario globoso pubescente, stylo ovario æquilongo.

The present *Allium* belongs to the large section *Molium*, which is marked by its ex-appendiculate outer filaments and symmetrical ovoid or globose bulbs. The best known species that represent this section are our wild British *A. ursinum* and the common South European *A. roseum*, *neapolitanum* and *subhirsutum*. The present plant is nearly allied to *A. decipiens*, Fisch. (*A. tulipæfolium*, Ledeb.), and when we first got the bulbs and they produced their primordial leaves the plant might easily have been mistaken for a Tulip, if it had not been for its garlic scent. The bulbs of the plant here drawn and described were received at Kew from Dr. Aitchison, F.R.S., in March, 1885. Dr. Aitchison informs us that it is cultivated at Kabul for the sake of its edible bulb, and that there is a field near the city which has been devoted to the cultivation of this and other onions for the last hundred years. We have also in the Kew Herbarium a dried specimen gathered at Kabul by General Sir Henry Collett, F.L.S. I cannot match it with any of the species described by Regel and Boissier. Our drawing was made from a plant that flowered in the Royal Gardens, Kew, in May, 1892.

Descr. *Bulb* solitary, globose, an inch in diameter; outer tunics pale, membranous. *Leaf* single, lorate-oblong,

glabrous, springing from the scape at the surface of the ground, six or eight inches long, two inches broad at the middle, narrowed gradually to the clasping base. *Scape* terete, stiffly erect, three or four inches long. *Umbel* dense, globose, many-flowered, about two inches in diameter; spathe monophyllous, ovate, small, deciduous; pedicels much longer than the flowers. *Perianth* one-sixth of an inch long; segments lanceolate, acute, whitish, with a keel of red-brown, finally reflexed. *Stamens* as long as the perianth; filaments all six alike, filiform from an ovate base; anthers linear-oblong. *Ovary* globose, pubescent; style as long as the ovary.—*J. G. Baker.*

Fig. 1, A closed flower; 2, segment of perianth; 3, stamens and pistil; 4, pistil; 5, a flower with the segments reflexed:—*all enlarged.*

7295.

M.S.del, J.N.Fitch lith

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Tab. 7295.

SATYRIUM sphærocarpum.

Native of South Africa

Nat. Ord. Orchideæ.—Tribe Ophrydeæ.

Genus Satyrium, *Sw.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 629).

Satyrium *sphærocarpum;* foliis ovato-oblongis acutis sensim in vaginis caulis (inferioribus foliaceis) mutatis, spica multiflora, bracteis herbaceis ovato-oblongis acutis flores æquantibus v. superantibus patulis demum deflexis, sepalis labello longe adnatis lateralibus lineari-oblongis intermedio lineari, petalis linearibus, labello galeato apice obtuso recurvo dorso medio alte carinato, calcaribus gracilibus ovario paullo longioribus, columna gracili, stigmate integro.

S. sphærocephalum, *Lindl. Gen. & Sp. Orchid.* 337.

The handsome terrestrial Orchids of South Africa have of late attracted the attention of horticulturists, and singularly enough they seem to be more amenable to cultivation than their terrestrial European allies. They are very numerous in species, especially the Disas and Satyriums, abounding in curious forms, and often presenting brilliant flowers. Of *Satyrium*, Mr. Bolus says, in his valuable "Orchids of the Cape Peninsula," about fifty-seven species are admitted, almost exclusively African, twenty being southern, ten tropical, and six insular, from the Mascarene Islands. Only one is Asiatic, the *S. nepalense*, figured at Tab. 6625 of this work, and which is one of the commonest hill plants of India, from the Himalaya to Ceylon.

S. sphærocarpum has a very wide range in South Africa, from the tropical climate of Delagoa Bay, in 26 S. (where it was discovered by Forbes, a collector for the Royal Horticultural Society, in 1823), to the temperate one of Grahamstown in 33° S. It is abundantly represented in the Kew Herbarium from the intermediate regions and especially from Natal. Its nearest ally is *S. militare*,

Lindl., also a South African plant, which differs in the more robust habit, smaller flower and shorter spurs; there is, however, a variety of *sphærocarpum* with small and pure white flowers (see fig. 4 of the accompanying plate) which was received at Kew from Natal along with the larger form, and flowered at the same time. This latter, indeed, is the typical *sphærocarpum*, according, as it does, in the size of the flower with the original plant described from Delagoa Bay; but whereas the large flowered form has by far the greatest range, it should be regarded as the natural type, and the smaller flowered as a variety. The varietal names of *micrantha* and *macrantha* would meet the difficulty of nomenclature.

Tubers of *S. sphærocarpum* were sent to Kew in March, 1892, by Mr. Medley Wood, A.L.S., Curator of the Botanic Gardens, Durban, Natal, and flowered in the Temperate House in October of the same year. The name *sphærocarpum* is not a very appropriate one, the fruit being shortly oblong as in many other species.—*J. D. H.*

Fig. 1, Flower; 2, column; 3, pollinium, *all enlarged;* 4, flower of variety *of the natural size.*

VERONICA Colensoi.

Native of New Zealand.

Nat. Ord. Scrophularineæ.—Tribe Digitaleæ.

Genus Veronica, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 964.)

Veronica (Hebe) *Colensoi*; fructiculus ramosissimus glaberrimus, foliis approximatis decussatim oppositis subsessilibus patentibus lineari oblongis obtusiusculis integerrimis v. rarissime pauci-serratis coriaceis ecarinatis viridibus, racemis ad apices ramulorum subfastigiatis breviter pedunculatis foliis subduplo longioribus rachi puberula, floribus subsessilibus, sepalis ovato-oblongis, corolla alba v. pallide lilacina tubo brevi, **capsula ovoidea calyce duplo longiore.**

V. Colensoi, *Hook. f. Handb. N. Zeald. Flora*, p. 209; *Armstrong in Trans. N. Zeald. Institute*, **vol. xiii.** (1880) **p. 351.**

Under *V. Lavauliana* (Plate 7210) I have given a brief account of the genus *Veronica*, as represented in New Zealand, together with some very interesting remarks on it by Mr. Armstrong, published in the Transactions of the New Zealand Institute, where no fewer than sixty species are enumerated as natives of the Archipelago. The majority of these belong to the section "Hebe," which, with the exception of a species common to Antarctic America and New Zealand, are all natives of Australasia, and especially of New Zealand itself. The species are, many of them, very variable in foliage, and hence difficult of discrimination in a dried state, especially those with small coriaceous leaves, as *V. pinguifolia* (tab. 6147), *V. carnosula* (tab. 6581), *V. parriflora* (tab. 5965), and *V. Traversii* (tab. 6390), all of which have closely allied congeners. Of these *V. Traversii* is the nearest in affinity to *V. Colensoi*, but is well distinguished by its more acute closer set keeled dark green leaves, and also by the longer pedicelled flowers, as shown in fig. 5 of the accompanying plate, though this is far from a consistent character,

as an inspection of tab. 6390 shows. Indeed, I am not at all sure that two species do not lurk under the name of *Traversii*, that figured as above, and a larger flowered, longer pedicelled one (the fig. 5 of this plate).

V. Colensoi was discovered by the distinguished botanical explorer of the New Zealand Flora whose name it bears in the Ruabine Hills of the Northern Island nearly half a century ago, and it has since been collected in the Alps of the Middle Island, from Nelson southwards, at elevations of three thousand to five thousand feet. The specimen here figured flowered in my own garden near Sunningdale, in July of last year. It was sent to me by Mr. Lynch, from the Cambridge Botanic Gardens. My friend Professor Balfour, informs me that a rich collection of New Zealand Veronicas, amounting to upwards of forty species, is cultivated in the Royal Botanic Gardens of Edinburgh, and has kindly promised to forward to me specimens of these as they flower for figuring in this Magazine. Being evergreen shrubs of remarkably close habit, they are well adapted for the rock-garden, which they ornament in winter especially.—*J. D. H.*

Fig. 1, Top of raceme with bracts and flowers; 2 and 3, stamens; 4, pistil; 5, portion of rachis and flowers of *V. Traversii*:—*all enlarged.*

Note on Exarhena *macrantha*, figured on t. 7291.—Mr. Engs informs me that this plant does not grow in the Chatham Islands; and that the erroneous habitat given for it must have been owing to a mistake in labelling the seeds. In the last line of the first paragraph of the second page of the description of that plant, for "between," read "beneath."

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ANTHURIUM Chamberlaini.

Native of Venezuela?

Nat. Ord. Aroideæ. Tribe Orontieæ.

Genus Anthurium, *Schott*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 998.)

Anthurium, *Chamberlaini*; caudice brevi radicali, foliis 3-pedalibus 2 pedalibus ovato-cordatis acuminatis glaberrimis coriaceis, lobis rotundatis, sinu late rotundato, costa media valida, nervis utrinque 16–18, costis sinubus marginalibus nervos ad 5–10 emittentibus, petiolo 3–4-pedali basi tantum vaginante, geniculo apice incrassato, pedunculo brevi tereti, spatha 8-pollicari oblongo-lanceolata scaphiformi pallide coccinea apice cucullato in rostrum erectum curvum marginibus incurvis angustata, marginibus infra medium recurvis, spadice 5 poll. longo breviter stipitato decurvo cylindraceo obtuso rubro-purpureo, sepalis prismaticis apicibus truncatis, antheris parvis oblongis, ovario cylindraceo, stylo brevi crasso in stigma hemisphericum desinente.

A. Chamberlaini, *Mast. in Gard. Chron.* (1888) vol. i. p. 462, fig. 66, 67. *Illustr Hortic.* vol. xxxv. (1888), t. 62.

Anthurium Chamberlaini is justly described by its author as "one of the noblest species of a genus already rich in superb species, and is handsome alike in foliage and in flower," adding "that it is appropriate to dedicate it to the eminent statesman (the Rt. Hon. Joseph Chamberlain, M.P.) of whose establishment it forms so conspicuous an ornament." In this appropriation I heartily concur.

It is no easy matter to find the nearest affinity of an *Anthurium*, a genus which numbers about one hundred and seventy described species, many of them known only in imperfect condition, and others far from accurately defined. Dr. Masters places it, I think rightly, in Engler's fourteenth section (*Cardiophyllum*) of the genus (DC. Monog. Phanerog. vol. ii. (Araceæ) p. 159), which includes fourteen of Schott's sections (Prodromus Aroidearum), and is characterized by the short prostrate or ascending stem, covered with persistent sheathing scales, elongated petioles, cordate leaves, retrorse primary basal nerves (costæ), and more or less oblong ovary narrowed into a short stout style, with a

sessile stigma. It differs from the sectional character in the spathe being neither white nor green; but so do some of the species placed in it by Engler himself, notably a subsection iii., which he describes as having green or red spathes, and to two species of which Dr. Masters thinks *A. Chamberlaini* is allied, namely *A. formosum*, Schott, and *A. bogotense*, Schott. Both these however should have, in accordance with the character of subsection iii., the spadix much longer than the spathe; but here again is an inconsistency, for of *A. formosum* the spathe is described as two diameters long, and the spadix as only one and a half. Another character of sect. *Cardiophyllum* is to have the fruiting sepals very acute, which is hardly consistent with the truncate flowering sepals of *A. Chamberlaini*. In short I am obliged to confess that I cannot make this plant fit into any of Engler's sections, and can give no better guess at its affinities than did Dr. Masters, to which I may add that it differs from *formosum* (which has a rosy spathe), in the stipitate spadix, and from *bogotense* in the spathe being longer than the spadix.

The native country of *A. Chamberlaini* is not known, but presumed to be Venezuela, as it was imported with *Cattleya Gaskelliana*, which comes from that country. The specimen here figured was presented by Mr. Chamberlain to the Royal Gardens in 1892, and flowered in February, 1893.—*J. D. H.*

Fig. 1. *Reduced* sketch of the whole plant; 2, leaf reduced to *one-third of the natural* size; 3, two views of the spathe and spadix of the natural size; 4, two flowers; 5, flower with the stamens exserted; 6 and 7, stamens; 8, pistil; 9, vertical section of the same:—figs. 4–9, *all enlarged.*

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SYMPHYANDRA Hofmanni.

Native of Bosnia.

Nat. Ord. Campanulaceæ. Tribe Campanuleæ.

Genus Symphyandra, *A.DC.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 503).

Symphyandra, *Hofmanni*; tota plus minusve pilosa, caule ebasi ramoso folioso, ramis decumbentibus, foliis oblanceolatis acutis duplicato-dentatis, inferioribus in petiolum elongatum angustatis supra glaberrimis, caulinis basi angustata sessilibus, floribus magnis terminalibus et in pedunculis foliosis axillaribus cernuis, calycis foliacei segmentis amplis oblongo-lanceolatis acutis basi profunde cordatis, corolla calyce vix duplo longiore campanulata straminea demum alba, lobis brevibus rotundatis, fauce laxe pilosa, filamentis basi quadratis ciliatis.

S. Hofmanni, *Pantocsek, in Magyar. Norent-Lapok.* vol. v. (1881), p. 150; *et in Œsterreich. Bot. Zeitsch.* vol. xxxii. (1882), p. 149; *Hofm. Beitrag zur Kennt. Fl. Bosn. ex Hofmann in Wien. Illustrirt. Gart.-Zeit.* vol. ix. (1884) 352, *cum. Ic.*; *Mast. in Gard. Chron.* (1888), vol. ii. p. 760, fig. 107 (*Hofmanni*).

The genus *Symphyandra* consists of seven species of plants closely allied to and with altogether the habit of *Campanula*, but distinguished from that vast genus by the connation of the anthers, thus tending to annul the distinction between the tribes *Campanuleæ* and *Lobelieæ*. It is Oriental in its distribution, extending from Bosnia and Crete to Armenia; the one supposed exception being the Himalayan *S. stylosa*, of Royle, which is, however, a species of *Phyteuma* (*P. Thomsoni*, Clarke). Of these seven species, only one has hitherto been figured in any British Illustrated Botanical work, the *S. pendula*, A.DC. of the Caucasus, in Sweet's Brit. Fl. Garden, Sev. ii. t. 66, which differs from *Hofmanni* in the prostrate habit. Pantocsek seems to regard *S. Hofmanni* as nearest to the Transylvanian *S. Wanneri* (Campanula Wanneri, *Roch.*), which is a much smaller plant, with an ascending stem, narrower leaves, toothed calyx-segments, and a blue corolla.

June 1st, 1893.

C. Hofmanni is a native of the margins of woods and rocky places near Banjaluka and Jaica in Bosnia, where it was discovered by the botanist whose name it bears in about 1880. It is, as grown in the Royal Gardens, where it flowered in July, 1888, a very striking plant, its decumbent flowering branches attaining a foot in length, but is doubtfully hardy.—*J. D. H.*

Fig. 1, Stamens and style; 2, top of style and stigma :—*both enlarged.*

1
2
3
4
5

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Tab. 7299, 7300.

TACCA pinnatifida.

Native of Polynesia.

Nat. Ord. Taccaceæ.

Genus Tacca, *Forst.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 741).

Tacca *pinnatifida;* foliis trisectis, segmentis pinnatifidis v. pinnatisectis, lobis undulatis superioribus amplis inæqualiter lobatis v. laciniatis lobulis acutis v. acuminatis, inferioribus infimisque sæpe interruptis, majoribus ovato-lanceolatis acuminatis minoribus parvis difformibus obtusis basi late decurventibus, involucri foliolis erectis sessilibus amplis cucullatis late ovatis hemisphericisve viridibus apicibus integris incisis pinnatifidisve, perianthii lobis incurvis.

T. pinnatifida, *J. & G. Forst. Char. Gen.* p. 69, No. 35. *G. Forst. Prodr. Fl. Ins. Austral.* p. 36; *Plant. Esculent.* p. 59, No. 28, *et Ic. ined. in Mus. Brit.* t. 151. *Ic. Parkinson ined. l. c.* t. 40. *Linn. Syst. Veg.* p. 455. *Willd. Sp. Pl.* vol. ii. p. 200. *Guillem. Zeph. Tait*, p. 133. *Seem. Fl. Vit.* p. 102. *H. Mann in Proc. Am. Acad. Arts & Sc.* vol. viii. (1866–8) p. 205. *Hillebr. Fl. Hawaii Islds.* p. 437. *Castello Fl. Polynes.-Franc*, p. 224. *Pancher in Ouzent Tahiti*, p. 172.

T. pinnatifolia, *Gærtn. Fruct.* vol. i. p. 43 (*excl. Syn. Rheede, ubi pro* vol. ii. *lege* xi.) t. 14, f. 2.

T. oceanica, *Nutt. in Am. Journ. Pharm.* vol. iii. (1838) p. 305-308, *cum Ic. Seem. Journ. Bot.* iv. (1866) p. 261.

Chaitæa Tacca, *Soland. Primit. Fl. Ind. Pacific* (*mss. ined. in Mus. Brit.*) p. 246. *Ellis Polynes. Res.* vol. i. p. 360.

The flowering of the Polynesian *Tacca pinnatifida* in the Royal Gardens, affords the opportunity of giving a representation of what must be considered as the type of that species, and which differs widely from the Indian plant which has hitherto been cultivated in England under that name; though whether the latter will prove to differ specifically must, until more of the forms of each are brought under close observation, be considered doubtful.

For the means of identifying the figure here given with Forster's plant, I am indebted to authentic specimens of the latter presented to the Kew Herbarium by the Corporation of Liverpool, a body which had for long been the

envied possessor of a set of Forster's plants collected during Cook's second voyage; and to tracings of the drawings of Forster and Parkinson, preserved in the British Museum, kindly made for me by Mr. E. G. Baker, F.L.S., of the Botanical Department of that Institution. It is hardly neccessary to remind the reader that Parkinson was the artist on the staff of Sir Joseph Banks during Cook's first voyage, when Dr. Solander, hereafter to be alluded to, was the active Botanist on the same staff; as also that the two naturalists, J. R. and G. Forster, father and son (the latter then only 17 years of age) accompanied Cook on his second voyage.

The first indication of the Polynesian *Tacca* that I have found is in the narrative of Cook's first voyage, Book I. Chap. XVII. where, describing the vegetable foods of the Tahiti Islanders, he mentions "a root of the Salep kind, called by the inhabitants Pia." A full description of it, drawn up on the spot, is contained in the mss. work of Dr. Solander, cited above, under the name he gave it of *Chaitæa Tacca*, and which description only differs from that of the specimen here figured in the margins of the perianth-lobes being purple, and the tips of the involucral bracts being more divided (pinnatifid).

The earliest published account of the Polynesian *Tacca* appeared in 1778, in J. and G. Forster's "Characteres Generum," which was followed ten years later by more detailed accounts in G. Forster's Florula of the Pacific Islands, and in his commentary on the esculent plants of the same. In the last of these works he identifies with his *Tacca pinnatifida*, the *Tacca sativa* and *T. litorea* of Rumpf's "Herbarium Amboinense," vol. v. p. 324, 328, t. 112, 114, published in 1750; in which he is followed by Gærtner (who changed the specific name to *pinnatifolia*); and by Roxburgh,* who described as *T. pinnatifiæ* speci-

* Roxburgh, referring to Forster's description in the Commentatio, goes too far in saying that this author "quoted Rumpf's" *T. phallifera*, t. 112 (error for 113) as a variety of *T. litorea*. Forster merely alludes to the plate (113) as that of a wild variety of *Tacca* figured by Rumpf as having a parasitic species of *Phallus* proceeding from the root, *and which he had not seen.* Roxburgh rightly referred the *Phallus* to his *Arum campanulatum* (Amorphophallus campanulatus, Schott), but curiously enough, in his "Flora Indica" (vol. iii. p. 508) he describes the leaf of a *Tacca* (*pinnatifida*) as a new species of *Arum*, *A. lyratum*, (Amorphophallus lyratus, *Engl.*).

mens cultivated in the Calcutta Botanical Gardens, of a plant which he had received from "the Malay countries."

Of Rumpf's two figures which represent what he takes for the cultivated and wild forms of *Tacca* (*sativa* and *litorea*), that of *T. sativa* is of a leaf only on a tuber covered with bulbils; that of *T. litorea* is of a plant with small lanceolate bracts, quite unlike those of Forster's *T. pinnatifida*, but closely agreeing with Roxburgh's description and excellent drawing of the same which is now in the Kew Herbarium.

Up to the date of the publication of the second volume of Roxburgh's "Flora Indica" (1832), nothing was known of any continental Indian *Tacca* (for Gærtner's citation of Rheede's Hortus Malabaricus, vol. xi. t. 21, refers to an Aroid. a species of *Theriophonum* ?). More recently, however, a *Tacca* known as *T. pinnatifida* has been found abundantly in the Concan and Ceylon, and is cultivated in Travancore and perhaps elsewhere in India and as it accords with Roxburgh's Malayan plant, the question arises whether or no the narrow bracted Western species which extends from Amboyna to Western India, is specifically the same with the broad bracted Polynesian. In favour of an affirmative answer it may be urged, that there is considerable variation amongst the Polynesian broad bracted forms. The flowers of the Fiji plant here figured are large and altogether green. Forster, as before observed, says of the Tahiti one that the perianth segments are bordered with purple, and Nuttall who recognized the difference between the Indian plant (which by oversight he regarded as the type) and the Polynesian, called the latter *T. oceanica*, and described the flowers as small brown or brownish-red. As far as can be determined from dried specimens in the Kew Herbarium and other data, the broad cucullate bracted form extends from the Sandwich and Society Islands to the Fijis, N. Australia, the Aru Isles, Malacca, and Madagascar (*T. madagascariensis*, Noronha), and both coasts of tropical Africa. That with lanceolate bracts from Amboyna to India. A form of the latter is fairly well figured in Loddige's Botanical Cabinets, t. 692; another, with very narrow leaf-segments, in Regel's Gartenflora, vol. xvii. (1868) p. 162, t. 582 (the accompanying analyses of which are purely imaginary);

and a third with both leaf-segments and bracts very narrow in Lamarck's Encyclop. t. 232. Over and above these are numerous specimens from various localities in Asia and Africa that show many forms of bracts, from broad and cucullate through trapeziform to broadly ovate and obovate and thence to lanceolate; and innumerable varieties in the size and decomposition of the leaf and breadth of its segments: so that in the absence of living specimens I am quite unable to distinguish the forms of *T. pinnatifida* by definite characters, whether as species or varieties. Their only pinnatifid-leaved ally is the stately *T. artocarpifolia*, *Seem.* of Madagascar, figured at t. 6124 of this work, which is remarkable for the very long lanceolate biseriate bracts, the inner erect, the outer deflexed, and the great size of the fruit, two inches long and pointed at both ends. That of *T. pinnatifida* varies much in shape, from ellipsoid to oblong, and in size, from one half to nearly one inch.

The root of *Tacca pinnatifida* attains the size of a large turnip; that of the wild plant is described by Forster as the most bitter and acrid of roots, but rendered milder by cultivation, it yielding after pounding, maceration, and many washings, a starch equal to the best. The latter forms a favourite food in many tropical countries of the old world, and has been imported into Europe. Pancher, in Cuzent's Tahiti, describes the root as yielding 30–60 per cent. of fecula, the glucose from which yields 42 per cent. of alcohol, and adds that the natives make it into cakes called Poe Pia, and that the flower stems afford a white shining straw used for platting.

I have found no mention of the Indian *Tacca* in any work devoted to the economic products of that country, except in Ainslie's Materia Medica of Hindostan, under roots, where it is stated that it grows to a large size in Travancore, is called Chanay Kelengu, and is much eaten, the natives adding an agreeable acid to subdue its natural pungency. Roxburgh says of the Malacca plant it is the "Lekin" of the inhabitants of that town, and under *Arum lyratum* he gives it the Telinga name of Udavee-Kundu.

The name *Tacca* is, according to Rumpf, derived from the Amboynan "Täa;" he adds that it is "Toja" of the

Banda Islanders, and "Leeker" of certain Malays. According to Seemann (Fiji Flora) it is the "Pia" of Tahiti and Samoa, and the "Yabia" or "Yabia dina" of Viti, where it was formerly cultivated. Tubers were sent to the Royal Gardens from the Botanical Station in Fiji in 1890, which flowered in January and February, 1891. Mr. Watson informs me that the perianth segments do not expand, and that in most cases the plants perished after flowering.—*J. D. H.*

Tab. 7299. *Reduced* figure of *T. pinnatifida*, Fig. 1, flower; 2, the same with the perianth segment removed; 3, perianth segment and anther; 4, front, and 5, dorsal view of anther; 6, crown of ovary style and stigmas; 7, transverse section of ovary; 8,ovule; 9, section of the filamentous bracteoles of the inflorescence:—*All enlarged.*

Tab. 7300. Inflorescence of *T. pinnatifida, of the nat. size.*

M.S.del, J.H.Fitch lith.

Tab. 7301.

RHODODENDRON racemosum.

Native of Western China.

Nat. Ord. Ericaceæ.—Tribe Rhodoreæ.

Genus Rhododendron, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 599.)

Rhododendron *racemosum*; fruticulus erectus, ramulis hornotinis subscabride glandulosis, foliis breviter petiolatis ellipticis obovatisve obtusis basi rotundatis cuneatisve, supra glabris subtus glaucis confertim lepidotis, floribus in corymbos subterminales dispositis, gemmarum bracteis ochraceo-fuscis extimis oblongis intimis linearibus, pedicellis flores parvos nutantes subsequantibus, calycis minuti lobis erectis rotundatis, corolla tubuloso-campanulata rosea, lobis oblongis patentibus obtusis, staminibus 10 exsertis filamentis infra medium villosis, antheris brevibus, ovario 5-loculari dense lepidoto, stylo elongato basi subpiloso.

R. racemosum, *Franch in Bull. Soc. Bot. Fr.* vol. xxxiii. (1886), p. 235. *Hemsl. in Journ. Linn. Soc.* vol. xxvi. (1889), p. 29. *Garden and Forest.* vol. v. (1892), p. 222; *W. Watson, in "The Garden,"* vol. xlii. (1892), p. 311.

The figure here given is that of the true *R. racemosum*, and it precisely corresponds with specimens of the wild plant in the Herbarium of the Royal Gardens, communicated from the Jardin des Plantes, by M. Franchet, the author of the species. It also accords, as Mr. Watson informs me, with plants grown under this name by Messrs. Veitch, who received them from the Jardin de Plantes, where they were raised from seed collected by Father Delavay, S.J., in China, but not well with the figure in "The Garden," which represents a robust plant with leaves one and a half to one and three-quarters inches long, and flowers one to one and a quarter inches diameter.

Under Tab. 7159 of this work I have made a few observations on the immense accessions to the genus *Rhododendron*, accruing from the travels of collectors in the mountainous regions of Western China. *R. racemosum* is one of them; it was discovered in the mountains of the Province of Yunnan, at elevations of eight thousand to ten thousand

feet above the sea. Its nearest ally amongst the Himalayan species is *R. glaucum*, Hook. f. (Tab. 4721), which it closely resembles in many characters, but differs in the minute obtuse calyx-lobes.

The specimen here figured was sent me by Dr. Balfour, F.R.G., from the Royal Botanic Gardens, Edinburgh, where it flowered in March of the present year. It also flowered at about the same time at Kew, and with Messrs. Veitch in the Combewood Nurseries. It is perfectly hardy, and very sweet-scented.—*J.D.H.*

Fig 1, Portion of undersurface of leaf, showing the peltate scales; 2, calyx and pistil; 3, scale from the calyx; 4 and 5, stamens; 6, transverse section of ovary:—*all enlarged.*

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Tab. 7302.

ACANTHORHIZA aculeata.

Native of Mexico.

Nat. Ord. Palmæ.—Tribe Corypheæ.

Genus Acanthorhiza, *Wendl.*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 925).

Acanthorhiza, *aculeata*; arborea, trunco basi radicibus æreis spinosis instructo annulato apice folioso, foliis patulis orbicularibus sinu basi angusto ad trientem partem plicato-multifidis læte viridibus subtus albescentibus, lobis ensiformibus acutis v. apice 2–3-fidis 5-costatis et multinerviis subdecurvis sinubus angustis nudis v. filiferis ligula late ovata obtusa concava crassa, petiolo laminæ subæquilongo biconvexo, marginibus subacutis, vagina brevi fibrosa, spadice decurvo compresso breviter pedunculato paniculatim ramoso, rachi ramisque brevibus crassis, spathis 3–4 elongatis albis deciduis, floribus pallidis dense spicatis crasse coriaceis, calycis lobis erectis oblongis obtusis, petalis calyci æquilongis orbicularibus concavis, filamentis subulatis crassis basi connatis, antheris oblongo-lanceolatis patenti-recurvis, ovariis anguste ovoideis in **stylos æquilongos erectos attenuatis.**

A. aculeata, *H. Wendl. ex André in Illustr. Hortic.* vol. xxvi., p. 185, t. 367; *et in Kerchove Les Palmiers*, p. 230. *Hemsl. in Biol. Centr. Amer. Bot.* iii. 411.

Trithrinax aculeata, *Liebm. ex Mart. Hist. Nat. Palm.* vol. iii. p. 320.

Chamærops stauracantha, *Hort. Belg. ex Linden Cat., et Heynh. Nomenc.* vol. ii. p. 136.

A very handsome palm discovered by M. M. Linden and Funck in 1840 in the Forests of Chiapas, Tabasco Province of S.E. Mexico, on mountains of 2–3000 ft. elevation, and introduced into Europe by M. Linden. It has also been found by Liebmann in Western Mexico, in Bamboo jungles in a calcareous soil between La Galera and Pochutla, and in woods near San Miguel del Puerto with *Chamædorea pochutlensis*, neither of which localities have I been able to identify. It belongs to a small genus of six or seven species, all natives of Mexico, Central America and Guatemala, and remarkable for the rigid spinous adventitious roots that are thrown out from the base of the trunk, and in young plants for several feet upwards. The figure in the Illustration Horticole is of a young plant

neither in flower nor fruit, nor is it accompanied with any further description than that of the locality and discoverers as given above. The leaves are represented as divided much more deeply (nearly to the base) than in the figure here given, but this deeper division of the leaves is a marked feature of immature plants of palmate-leaved palms.

In the meagre description given by Martius, evidently of a young specimen of this species, the trunk is described as four to six feet high, covered with fragments of fronds, and aculeate towards the top, characters not shown in our specimen. (Can the top be an oversight for the base?) Dr. Wendland informs me that a specimen in the Royal Garden of Herrenhausen flowered there many years ago, but did not fruit. Of the Kew plant no history is retained. It was no doubt obtained from Belgium soon after the importation of seeds half a century ago. It is now 27 ft. high, with a girth of trunk $2\frac{1}{4}$ ft.; the leaves are 5 ft. diam., the petiole 3–4 ft.; the crown of leaves is 11 ft. diam. The peduncle rachis and branches of the spadix are pale yellow, the flower a dark creamy pink. It flowered in the Palm House of the Royal Gardens in November, 1892.

Fig. 1, flower; 2, petal; 3, stamens; 4, fruit; 5, back view of stamen; 6, pistils:—*All enlarged.*

M S.del, J.N.Fitch lith.

Tab. 7303.

LASIOSIPHON anthylloides.

Native of South Africa.

Nat. Ord. Thymelæaceæ.

Genus Lasiosiphon, *Fresen.*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 197.)

Lasiosiphon, *anthylloides*; caule erecto folioso, foliis sessilibus patulis v. decurvis et revolutis oblongo-lanceolatis acutis utrinque subtus præcipue sericeo-villosis paucinerviis, supremis confertis suberectis apicibus recurvis involucrum campanulatum efficientibus, floribus umbellatis subsessilibus, perianthii tubo $1\frac{1}{2}$-pollicari gracillimo sericeo-piloso involucro duplo longiore, limbi sulphurei lobis ovato-oblongis obtusis extus pilosis fauce esquamato, antheris linearibus, ovario oblongo basi angustato apice parce piloso.

L. anthylloides, *Meissn. in DC. Prodr.* vol. xiv. p. 595.

Passerina anthylloides, *Linn. f. Suppl.* p. 226. *Thunb. Prodr. Fl. Cap.* p. 76; et *Fl. Cap.* p. 377. *Wikstr. Thymel.* p. 347. *Meissn. in Linnæa*, vol. xiv. p. 392, *et in Hook. Lond. Journ. Bot.* vol. ii. (1843), p. 551, *sphalm.* 451.

Dais sericea, *Lamk. Dict.* vol. ii. p. 767.

D. anthylloides, *Eckl. & Zey. Herb.* n. 3765, 35.

Arthrosolen anthylloides, *C. A. Mey. in Bull. Acad. Petersb.* vol. iv. n. 4. *Endl. Gen. Pl. Suppl.* iv. p. 2.

Gnidia *tomentosa*, *Eckl. in Herb.* (*non alior.*).

The natural Order *Thymelæaceæ* abounds in South Africa, where it is represented by many chiefly endemic genera; to this, however, *Lasiosiphon* forms an exception, for to about twenty endemic African and Madagascar species, there is added a continental Indian one, the *L. eriocephalus*, Decne, which under seven specific names extends from the North Western Himalaya to Ceylon and Malacca. The African species are small shrubs with a good deal of the habit of the Australian genus *Pimelea*, as the species here figured shows. It, however, differs widely from *Pimelea* in the five-lobed perianth and ten stamens. *L. anthylloides* is a very variable plant in size, in the stout or slender branches, in the direction of the lanceolate to oblong leaves, and in their silky hairiness.

July 1st, 1893.

As with so many plants of Eastern South Africa, it has a very wide range of distribution, from the hilly districts of Natal, the Transvaal and Orange Free State, to lat. 28° S., ascending to 4000 ft., on the Winterhock Mts., near Uitenhage, in nearly 34° S. lat. The variety represented is a very elegant one from the graceful habit and the disposition of the revolute decurved silky leaves; it was sent in 1889, for figuring by Mr. Lynch, A.L.S., from the Cambridge Botanic Gardens, where it flowered in a greenhouse in the month of September, 1889.—*J. D. H.*

Fig. 1, Back of leaf; 2, flower with the perianth-tube laid open; 3, base of pedicel disk and ovary; 4, summit of style and stigma:—*All enlarged.*

M.S del. F.N.Fitch Ct

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Tab. 7304.

MISCANTHUS sinensis.

Native of China and Japan.

Nat. Ord. Gramineæ.—Tribe Andropogoneæ.

Genus Miscanthus, *Anderss.*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 1125.)

Miscanthus, *sinensis*; culmis erectis robustis glabris v. infra paniculam villosam pubescentibus, foliis linearibus canaliculatis supra glabris v. parce pilosis subtus pubescentibus marginibus scabridis, vaginis glabris scaberulisve ligula ciliata, panicula erecta flabellata, racemis elongatis corymboso-fastigiatis sessilibus multifloris infimis 3–4-nis rachim sæpissime superantibus, spiculis pedicellatis $\frac{1}{10}$ poll. longis stramineis nitidis glabris v. sparse pilosis villos albos v. subviolaceos subæquantibus, gluma i. et ii. acuminatis, iii. hyalina ciliata, iv. integra v. apice bifida dentibus subulatis, arista gracillima gluma duplo v. triplo longiore, palea brevissima 2–3-fida v. lacera.

M. sinensis, *Anderss. in Œfvers. K. Vets. Akad. Förhandl. Stockh.* (1855), 166. *Hackel in DC. Monog. Phan.* vol. vi. p. 105.

Erianthus japonicus, *Beauv. ex Roem. & Sch. Syst.* vol. ii. p. 324. *Nees in Hook. et Arn. Bot. Beech. Voy.* p. 242.

Eulalia japonica, *Trin. in Mem. Acad. Petersb. Ser.* 6, vol. ii. p. 333; *et Hortulanorum.*

E. japonica, *var.* foliis univittatis, *Carr. & André in Rev. Hortic.* (1889), p. 516.

Ripidium japonicum, *Trin. Fund.* p. 169.

Saccharum japonicum, *Thunb. in Trans. Linn. Soc.* vol. ii. p. 328 *in part. Willd. Sp. Pl.* vol. i. p. 321.

S. polydactylon, var. β. *Thunb. Fl. Jap.* p. 43.

The handsome grass here figured belongs to a small Eastern Asiatic, Himalayan and Polynesian genus, closely allied to that of the sugar-cane, *Saccharum*, from which it differs in the rachis of the raceme not being articulated and becoming disjointed at the bases of the pedicels of the spikelets; as also in the corymbiform or flabelliform panicle, the lower racemes of which often exceed in length the rachis of the panicle itself. Hackel, the latest and best authority on the Andropogineous grasses, enumerates seven species of *Miscanthus*, which are probably reducible to five or six. As the cited synonyms (taken from

Hackel's monograph) show, there has been confusion in the nomenclature of the two *Miscanthi* founded by Andersson on the old *Saccharum japonicum* of Thunberg; namely, *M. sinensis* and *japonicus*. Of both of these there are sufficient specimens in the Kew Herbarium, but being undistinguishable by the characters given by Hackel, I requested Dr. Stapf (Assistant for India in the Kew Herbarium), to be so good as to compare them critically for me; and he has kindly given me as his opinion, that though very distinct in the extreme forms, they pass into one another in portions of their common area, but that each being rather uniformly distributed over large tracts, they may be kept as distinct species. The following are his characters of the extreme forms :—

M. sinensis; leaves 3– rarely to 6– lin. broad, often strigose; panicle flabelliform; rachis short, with rather stouter racemes; pedicels straight or slightly curved; outer glumes 2–2¾ rarely 3 in. long, long-acuminate, glabrous or with few hairs :—*Distrib.* Tonkin to Corea, Loochoo Islds., and var. *purpurascens* with more hairy or villous glumes (*M. purpurascens*, Anderss.) Japan.

M. japonicus; leaves 8–10 lin. broad, rarely 1½ in., glabrous; panicle oblong or obovate, rachis elongate; racemes slender; pedicels slender, usually more or less recurved; outer glumes 1–1½ rarely 2 lin. long or (longer in Philippine and Polynesian specimens) acuminate, glabrous.—*Distrib.* Japan, China, Philippines, N. Caledonia and Polynesian Islds.

The broad-banded leaved *Eulalia japonica*, figured in *Gard. Chron.* (1877), p. 565, fig. 89, referred to *sinensis* by Hackel, agrees better with *M. japonicus*.

The specimen here figured flowered in the open-air in the Royal Gardens, Kew, in September, 1892.

Fig. 1, portion of sheath and ligula; 2, spikelet; 3, glume i.; 4, glume ii.; 5, glume iii.; 6, pale; 7, lodicules; 8, anther; 9, ovary :—*All greatly enlarged.*

M S. del, J.N Fitch lith

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Tab. 7305.

VACCINIUM PADIFOLIUM.

Native of Madeira.

Nat. Ord. Vacciniaceæ. Tribe Euvaccinieæ.

Genus Vaccinium, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 573).

Vaccinium (Euvaccinium) *padifolium*; arbuscula v. arbor parva, foliis deciduis ovato-oblongis acutis serrulatis subtus pubescentibus, racemis foliosis, pedicellis cernuis, bracteis foliaceis serrulatis, calycis lobis late ovatis, corolla campanulata roseo-luteola breviter 5-loba, lobis obtusis, antheris puberulis ecalcaratis tubulis loculos æquantibus, baccis cæruleis.

V. padifolium, *Sm. in Rees Cyclop.* vol. xxxvi. (1819), *Vaccin.* n. 22. *Loud. Arboret. Brit.* vol. ii. p. 1164 (*excl. syn.*).

P. maderense, *Link Enum. Hort. Berol.* p. 375 (1821). *DC. Prodr.* vol. vii. p. 567. *Lowe Man. Fl. Mader.* p. 580. *H. Wats. in Godman Nat. Hist. Azores*, p. 191.

V. Arctostaphylos, *Willd. Sp. Pl.* vol. ii. p. 353 *pro parte*. *Andrews Bot. Repos.* t. 30. *Ait. Hort. Kew Ed.* vol. ii. p. 358 (*pro parte*).

The Madeiran whortleberry was first published by Sir James Smith in Rees' Cyclopædia in 1819, a work very naturally overlooked by the botanists of the day, as indeed it is down to the present period. It was hence again published by Link in 1821, under the name of *V. maderense*. It is very closely allied to *V. Arctostaphylos*, Willd. of Asia Minor and the Caucasus, if not indeed specifically the same species, as is held by many botanists, notwithstanding its wide severance in geographical area, in which respect it recalls *Rhododendron ponticum*, a plant found nowhere between Asia Minor and South Spain. *V. Arctostaphylos* is figured at t. 974 of this magazine, and a comparison of its figure with that of *V. padifolium* shows such differences as there are between them.

Another and indeed more closely allied plant is *V. longiflorum*, Wikstr. a form of *V. cylindraceum*, Smith (but kept apart by Guthnick in the "Flora Azorica," a native of the Azores, in which the corolla is sometimes a full inch long and cylindrical. The late Mr. H. Watson, who made

a critical study of these three species for Godman's "Nat. Hist. of the Azores," sums up as his view, that *longiflorum* and *cylindricum* mean just the same thing, all the laboured distinctions set forth in order to keep up two species being mere verbiage." And that with regard to *V. cylindricum* and *maderense*, "the flowers do appear much dissimilar in length and thus so far likewise in form, my largest Azore flowers being a full inch long, the smallest Madeiran less than half an inch. But an approximate gradation in size is readily traced which leaves barely $\frac{1}{8}$ of an inch between the largest flowers of the Madeiran and the shortest of the Azorean."

Whether as a species or variety there can be no doubt of the common origin of these Asia Minor and Madeiran and Azorean *Vaccinia*, and that (like the *Rhododendron* above alluded to) and the Indian forms of *Laurineæ* existing in the Canary Islands, it points to Spain and the Atlantic Islands, being the isolated western homes of the fragments of a Flora that once extended over Europe and North Africa; but now, through climatic changes elsewhere expelled from those great continents.

V. padifolium was introduced into Kew in 1777 from Madeira by Francis Masson, a collector for the Royal Gardens, where it has been in cultivation ever since. The figure here given is made from what is probably the original plant, which has stood ever since I can recollect (since 1843) in the grass-plot on the left-hand side of the principal entrance on Kew Green, where it flowers annually in June or July, and fruits in September. In Madeira, where it attains the size of a small tree, it inhabits elevations of 2000 to 5000 ft., and its fruit makes an excellent preserve.—*J. D. H.*

Fig. 1. Pedicel, bracts, calyx and style; 2 and 3, front and back view of stamens; 4, pistil;—*All enlarged.*

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Tab. 7306.

CROTALARIA LONGIROSTRATA.

Native of Mexico.

Nat. Ord. Leguminosæ. Tribe Genisteæ.

Genus Crotalaria, *Linn.*; (*Benth. & Hook. f. Gen. Pl.* vol. i. 479.)

Crotalaria, *longirostrata*; suffruticosa, ramis elongatis gracilibus glabris, foliis 3-foliolatis, foliolis oblongo- v. cuneato-obovatis utrinque rotundatis apice mucronulatis, supra glabris subtus incanis et brevissime appresse pilosis, stipulis bracteisque minutis subulatis deciduis, racemis erectis elongatis multifloris, calyce glabriusculo late campanulato, lobis tubo hemispherico triplo longioribus incurvis acuminatis, 2 superioribus ovatis 3 inferioribus lanceolatis, vexillo amplo latiore quam longo, reflexo emarginato alis oblongis paullo longiore, ungue ciliato, carinæ petalis breviter stipitatis ovato-lanceolatis acuminatis, legumine elliptico-cylindraceo vix puberulo, sutura ventrali profunde sulcata.

C. longirostrata, *Hook. & Arn. Bot. Beech. Voy.* p. 285, 414. *Walp. Rep. Bot.* vol. i. p. 594. *Hemsl. in Biol. Centr. Amer. Bot.* vol. i. p. 226.

A very handsome greenhouse plant, described as suffruticose, but, though copiously branched, herbaceous as grown in the Royal Gardens, where it forms a conspicuous winter feature in the Begonia house, flowering freely from December to March, and attaining a yard in height. It was discovered by the late Dr. Sinclair, Surgeon in H.M. *Blossom* during the Surveying Voyage of Capt. Beechey, at Acapulco on the west coast of Mexico, and also in the province Jalisco by other officers of the ship, and on the Volcano de Fuego in Guatemala, alt. 5300 ft., by Mr. Salvin, F.R.S., and at Mazatenango, by Bernoulli.

The Kew plant was raised from seed sent by the Department of Agriculture of the United States of America in 1891, and it flowered in the present year.—*J. D. H.*

Fig. 1, Calyx; 2, claw and base of standard; 3. petal of wings; 4, petal of keel; 5, stamens and pistil:—*All enlarged.*

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Tab. 7307.

PHAJUS TUBERCULOSUS.

Native of Madagascar.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Phajus, *Lour.*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 512).

Phajus (Gastrorchis) *tuberculosus*; caudice crasso articulato, foliis subfasciculatis lanceolatis attenuato-acuminatis in petiolum pseudobulbo parvo ovoideo articulatum insidentem angustatis, pedunculo e caudice oriundo elato pluri-vaginato, racemo erecto multifloro, bracteis ovato-lanceolatis ovaria æquantibus, floribus 3-poll. latis, sepalis petalisque ovato-oblongis obtusiusculis albidis, labelli tubo flavido subcylindraceo basi in gibbum rotundatum inflato, limbo dilatato 3-lobo, lobis lateralibus amplis auriculæformibus recurvis aureis rufo creberrime et grosse punctatis marginibus crenato-lobulatis, lobo terminali rotundato 2-lobulato crispato-crenato albo purpureo maculato, disco carinis 3 crassis abbreviatis aureis ornato, columna incurva exalata apicem versus sparse setulosa, polliniis elongatis.

P. tuberculosus, *Blume Orchid. Archip. Ind.* p. 13, t. xi.; *Mus. Bot. Lugd. Bat.* vol. ii. p. 181. *Warner, Orchid. Album.* vol. ii. t. 91. *Godefr. Orchidophile,* p. 93 *cum Ic. Veitch Man. Orchid. Part* vi. p. 13, *cum Ic. Rolfe in Lindenia,* vol. vii. p. 79, t. 326. *Regel. Gartenfl.* t. 1339. *Reichenbachia,* Ser. 2, vol. i. p. 7, t. 4. *Hortic. Belge,* 1892, p. 145. *Gard. Chron.* 1881, vol. i. p. 342; 1882, vol. ii. p. 565, f. 101; 1884, vol. i. p. 520, f. 104.

P. tuberculatus, *Gard. Chron.* 1881, vol. i. f. 67.

Limodorum tuberculosum, *Thouars, Orchid. Iles Austr. Afrique,* t. 31.

Bletia tuberculosa, *Spreng. Syst. Veg.* vol. iii. p. 744. *Lindl. Gen. & Sp. Orchid.* p. 123.

Decidedly the most beautiful species of the noble genus *Phajus*, which is perhaps, all points considered, including facility of cultivation of the majority of the species, one of the most striking of the Order. It belongs to a small section of the genus, natives of Madagascar and other African Islands in the Indian Ocean, differing from the *Euphaji* by the gibbous spurless base of the tube of the lip. Though only recently introduced into cultivation, it has long been known to Botanists, having been described by Petit Thouars in 1822; and there are specimens in the

Kew Herbarium from various collectors and various localities in Madagascar, from near the sea to the central region.

The plant here figured was obtained in 1889 from Messrs. F. Sander and Co. of St. Albans, who imported it from Madagascar, whence it was transmitted by the brothers Humblot. It flowered in the Royal Gardens in February of the present year. Mr. Watson informs me that its successful cultivation is difficult, and that at Kew it is planted on a piece of tree-fern stem with *sphagnum*, and kept in the most humid and hot part of the stove. The flowers have a faint sweet odour.—*J. D. H.*

Fig. 1, side and front view of column; 3, anther; 4 and 5, pollinia.

M S del J N Fitch lith.

L Reeve & Co London.

Tab. 7308.

SPHÆROLOBIUM GRANDIFLORUM.

Native of Western Australia.

Nat. Ord. Leguminosæ. Tribe Podalyrieæ.

Genus Sphærolobium, *Sm.*; (*Benth. & Hook. f. Gen. Pl.* vol. i. p. 469.)

Sphærolobium (Eusphærolobium) *grandiflorum;* ramulis gracillimis pendulis floriferis aphyllis, foliis parvis linearibus obtusis, floribus geminis racemosis, bracteis minutis, pedicellis calycem subequantibus, bracteolis minutis linearibus, calycis nigro-punctati tubo obconico limbo subequilongo, vexillo oblato emarginato aureo fascia lunari rubra notato, alis vexillo brevioribus acinaciformibus obtusis, carinæ petalis alis fere duplo latioribus dolabriformibus, stylo elongato incurvo infra apicem alato, legumine latiore quam longo.

S. grandiflorum, *R. Br. ex Benth. in Pl. Hueg. Enum.* 32; *in Ann. Wien. Mus.* vol. ii. p. 76, et in *Fl. Austral.* vol. ii. p. 66. *Meissn. in Pl. Preiss.* vol. i. p. 57.

This beautiful greenhouse plant belongs to a genus of thirteen species, confined with a single exception to South-Western Australia. That exception is the *S. vimineum*, Sm., figured at t. 969 of this work, which has a very wide range in Australia, from Port Jackson to Tasmania and westward to S. Australia, and which is so insignificant as compared with the present species, that but for the abundance of its flowers and graceful habits, it would not in these days be thought worthy of cultivation. It is the most closely allied of all to *S. grandiflorum*, which, as far as can be judged from herbarium specimens of the other species (none of which except *vimineum* have been figured), is the handsomest of the genus.

S. grandiflorum was discovered by Menzies, the naturalist of Vancouver's voyage, at King George's Sound, where it has been since collected near Albany, by Preiss and Drummond, and further West in bogs of the Vasse river in Geographe Bay by Oldfield, and at Phillip's river by Maxwell.

August 1st, 1893.

The seeds from which the plant here figured were raised, were contained in a parcel of miscellaneous unnamed Australian seeds, presented to the Royal Gardens by Miss Kate F. G. Logue, Udoc, W. Australia, in 1889. The plant itself flowered in the Temperate House in April of this year, and was very attractive.—*J. D. H.*

Fig. 1, Calyx, stamens and style; 2, standard; 3, wing-petal; 4, keel-petal; 5, ovary: all from the flowering specimen and *enlarged*.—Fig. 6, pod of the *natural size*; 7, the same *enlarged*; 8, seed *enlarged*: all from Herbarium specimens.

M. S. del. J. N. Fitch. lith.

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Tab. 7309.

BROWNLEEA cœrulea.

Native of South Africa.

Nat. Ord. Orchideæ. Tribe Ophrydeæ.

Genus Brownleea, *Harv.*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 631).

Brownleea *cœrulea*; tubere amorpho lobato, caule gracili paucifoliato, foliis sessilibus v. breviter petiolatis ovatis lanceolatisve acuminatis 3-costatis, spica laxe multiflora, bracteis lanceolatis ovaria æquantibus, floribus pallide cœruleis punctis saturate violaceis conspersis, sepalo dorsali erecto infundibulari in calcar elongatum rectum v. lente flexuosum horizontale apice clavellatum attenuato, sepalis lateralibus porrectis oblongis obtusis, petalis ori sepali dorsali cohærentibus acinaciformibus, labello brevissimo marginibus columnæ adnato medio in processum parvum erectum obtusum (lobum medium) instructo.

B. cœrulea, *Harv. ex Lindl. in Hook. Lond. Journ. Bot.* vol. i. (1842) p. 16. *Harv. Thes. Capens*, vol. ii. p. 2, t. 103.

B. macroceras, *Sond. in Linnæa*, vol. xix. (1847) p. 106.

B. madagascarica, *Ridley in Journ. Linn. Soc.* vol. xxii. (1887) p. 126.

The genus *Brownleea*, which consists of three species of South African terrestrial Orchids, was founded by Lindley on two of the species, of which one is here figured. Lindley describes the genus as having the habit of *Disa*, adding, "but the petals (unless I greatly err) cohere with the posterior sepal, and the labellum, which is exceedingly minute, is reflected back on the column to which its margins adhere, whilst its inner or upper surface is free; thus forming a little pouch." Of the above characters the only one of importance in distinguishing *Brownleea* from *Disa*, is the small upturned lip, for the adhesion of the petals to the dorsal sepal is probably apparent only, and due to drying (as I have found to be the case in *Habenaria* and other genera). In the Genera Plantarum (Key to the Genera of Orchids, iii. 487) *Brownleea* is erroneously described as having no spur, and in the body of that work (p. 631) as having an erect concave or helmet-shaped odd sepal without a spur; and

in a note appended to the description of the genus, it says, "Certainly closely allied to *Disa* although the stigma is hardly pulvinate."

The genus was named at Dr. Harvey's suggestion, after the Rev. J. Brownlee, a missionary stationed in King William's Town, Caffraria, and an observing naturalist, who discovered this and another species (*B. parviflora*, Harv.) in sheltered spots amongst trees near the above station. A third *D. recurvata*, Sond. (in Linnæa, vol. xix. p. 106), also from Caffraria, has been added to the genus. *D. cærulea* has since been found in many other localities in S.E. Africa, from Natal, alt. 3–4000 ft., to Grahamstown, and also in Madagascar.—*J. D. H.*

Fig. 1, Top of ovary and flower with the lateral sepals cut off, showing the minute erect lip in front of the column and adnate to it; 2, dorsal sepal and petals; 3, column; 4, pollinium:—*All enlarged.*

M S del. J.N.Fitch lith.

Vincent Brooks, Day & Son Imp.

Tab. 7310.

ILEX conocarpa.

Native of Brazil.

Nat. Ord. Ilicineæ.

Genus Ilex, *Linn.*; (*Benth. & Hook. f. Gen. Pl.* vol. i. p. 356.)

Ilex *conocarpa*; frutex 6-pedalis, ramulis robustis apice cum pedunculis calycibusque subtiliter puberulis sulcatis, foliis lanceolatis acuminatis serrulatis in petiolum validum angustatis coriaceis glaberrimis subtus pallidioribus nigro-punctulatis, nervis laterabilus 10–12 prominulis reticulatis, spicis solitariis v. glomeratis cylindraceis crassis densifloris petiolum superantibus v. abbreviatis, masculis $\frac{3}{4}$–$1\frac{1}{4}$ lin. longis, fœmineis brevioribus, floribus tetrameris, masculis 2–$2\frac{1}{2}$ in. diam. foem. minoribus, calycis lobis rotundatis, staminibus corollæ lobis paullo brevioribus, drupa $2\frac{1}{2}$ lin. longa ovoideo-conica, stigmate depresse mamillari coronata.

I. conocarpa, *Reiss. in Mart. Fl. Bras.* vol. xi. pars i. p. 66, t. xiii. f. 14 (leaf).

Ilex conocarpa is an interesting plant economically, as being one of that extensive Brazilian genus which yields a "Maté," or Paraguay tea, though to what extent this is used, or whether as a substitute for, or an adulteration of the true "Maté," I have no means of ascertaining. Of the "Maté" yielding Ilexes, it is stated in Martius' "Flora," l. c. p. 123, that *I. theezans*, *diuretica*, *sorbilis*, *domestica*, *pseudothea*, *medica*, and *conocarpa*, are, together with *Villarezia mucronata*, all confounded in Brazil under the name of Congonha or Gongonha, and are worthy of mention as similar or equal to the true *I. paraguensis*,* in virtues and uses, but that they have not been chemically investigated. All are indigenous in Brazil, none being described as cultivated, and they belong some to one, some

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* *I. paraguariensis* is the name originally (in 1822) given to the species by St. Hilaire, in Mem. du Mus. vol. ix. (1822) p. 351, no doubt in reference to the town of Paraguari, in Paraguay; but as it was abandoned by its author and replaced by that of *I. Mate* in 1824, Lambert's *I. paraguensis*, also published in 1824, may be adopted in preference, as being much earlier than the usually adopted *paraguayensis*.

August 1st, 1893.

to the other of the two divisions into which Reiss has divided the sixty-three Brazilian species, namely the punctate and impunctate leaved, the former of which includes *I. conocarpa*.

Of the true Maté, a good figure is given at tab. 3992 of this work, and a very full description of the plant and its uses, in the London Journal of Botany, vol. i. p. 35. It differs from *I. conocarpa*, in the broader leaves, and especially in the smaller panicled greenish flowers, and in the globose fruit; and it has a more southern range, from Rio to Paraguay, where it abounds wild, and has been cultivated by the Jesuits.

I. conocarpa belongs (as stated above) to the punctate-leaved section of the genus, of which Reiss describes no less than twenty-nine species (including *I. paraguensis*) which are so nearly allied that he has not been able to subdivide them sectionally. Its distinctive character is the conical fruit, of which I have seen no example, and without which its identification cannot be considered absolutely determined; but the plant here figured being in all respects identical with that collected by Gardner in bushy hills about Ouro Preto in Piauhy (N. 5004) and which is regarded by Reiss as typical of his *I. conocarpa*, I see no reason for doubting its being correctly named.

The plant here figured was sent from the Botanical Gardens of Rio to those of Kew by Monsieur A. Glaziou, in 1889, and flowered in a stove in March of the present year. Only male flowers were produced.—*J. D. H.*

Fig. 1, Cluster of flowers; 2, section of calyx and imperfect ovary; 3, corolla laid open:—*All enlarged.*

Postscript to Tab. 7310. Ilex conocarpa.

When making, under the description of the above-named plant, some observations on the synonymy of its congener, *I. paraguensis*, it had escaped my memory that Mr. N. E. Brown, in an important essay on the Paraguay Tea plants, published in the Kew Bulletin (for 1892, p. 133) had proved that the *I. paraguayensis*, Tab. 3992 of this Magazine, is a species of *Elæodendron*, probably *E. quadrangulatum*, Reiss. (in Mart. Fl. Bras. vol. xi. p. 33, t. 5, f. 1, 2); and that the figure of *I. paraguayensis* in Hooker's Journal of Botany, vol. i. (1842), t. 3, is *I. nigropunctata*, Miers (*I. affinis*, var. *angustifolia*, Reiss. l. c. p. 70, t. 14, f. 9). Of the other species for which I have cited the Flora Brasiliensis as yielding a Maté, Mr. Brown regards *I. sorbilis*, *I. domestica* and *I. theæzans* as varieties of *I. paraguensis*.

M.S. del, J.N. Fitch lith.

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Tab. 7311.

MUSA Mannii.

Native of Assam.

Nat. Ord. Scitamineæ. Tribe Museæ.

Genus Musa, *Linn.*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 655.)

Musa *Mannii*; caudici gracili humile basi stolonifera, foliis longiuscule petiolatis lineari-oblongis obtusis basi cuneatis v. rotundatis, spica elongata laxiflora inclinata, bracteis oblongis cymbiformibus obtusis glabris roseis 3-floris, fl. masc. 2-pollicaribus tubulosis flavis, calycis cylindracei striati lobis 5 minutis recurvis, corolla calyce breviore apice truncata breviter obtuse 3-loba, antheris filamentis pluries longioribus apicibus exsertis, baccis fusiformibus trigonis glabris.

M. Mannii, *H. Wendl. ms.*; *Baker in Hook. f. Fl. Brit. Ind.* vol. v. p. 263.

The Asiatic and Polynesian species of *Musa* are imperfectly known, and the published descriptions being for the most part very imperfect, botanists in Europe are dependent on cultivated specimens or on good drawings made from living ones for what little is ascertained about them.

They fall under three groups, 1st, those with short ovoid stems, which are not stoloniferous (the whole plant dying after flowering), and with many-fld. bracts. Of these, *M. superba*, Roxb., figured at tab. 3849 of this work, is the type:—2nd, those with erect stems stoloniferous at the base, and many-fld. bracts. To this belongs *M. Sapientum*, with its innumerable cultivated varieties:—3rd those with slender stoloniferous stems and few-fld. bracts. Of these the only satisfactorily figured or described species are *M. rosacea*, Jacq. of the Eastern Himalaya, and *M. sanguinea*, of the Assam Valley, figured at Tab. 5975; but it has long been known that others exist in Assam under the names of *assamica*, *aurantiaca*, *dasycarpa*, and *velutina*. All of these were, I believe, discovered by the veteran explorer, Dr. Gustav Mann, of the Indian Forest Department, whose previous travels and botanical dis-

coveries in tropical Western Africa have immortalized him.

M. Mannii resembles most in habit *M. rosacea*, Jacq., a plant first imported to England from and supposed to be a native of the Mauritius (an island that does not contain an indigenous species of the genus) but which was no doubt introduced thither from India. It differs from *M. Mannii* in the longer-petioled leaves, large pale purplish bracts six to ten inches long, and the shorter deeper yellow flowers.

The plant here figured was received from Dr. Wendland of the Herrenhausen Botanical Gardens, Hanover, in 1885, and has flowered annually in the Royal Gardens, Kew, in the month of March. It was unfortunately not brought to me for figuring until after the female perianth had fallen away. The stem attains a height of two feet, and a girth of three and a half inches at the base, the leaf two feet in length by seven inches broad, its petiole eight inches. The spadix was six inches long. The fruit is small, three to four inches long, fusiform, obtusely trigonous, with a very broad truncate apex. Mr. Watson has succeeded in procuring ripe fruits from fertilizing *M. Mannii* with pollen of *M. rosacea*. These are about two inches long, obtusely trigonous, green with a pale sweet glutinous pulp and many seeds. The seeds are black, $\frac{1}{4}$ inch long, irregularly oblong, plano-convex or trigonous; the testa rough, crustaceous; the albumen flowery; and the embryo lateral. They have not as yet germinated.—*J. D. H.*

Fig. 1, Male flower; 2 and 3, stamens; 4, top of style and stigma; 5, transverse section of ovary:—*All enlarged.*

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Tab. 7312.

BAUHINIA VARIEGATA, var. candida.

Native of Tropical Asia.

Nat. Ord. Leguminosæ. Tribe Bauhinieæ.

Genus Bauhinia, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 575.)

Bauhinia (Phanera), variegata; *Linn. Sp. Pl.* 375; *DC. Prodr.* vol. ii. p. 574. *Ham. in Trans. Linn. Soc.* vol. xiii. p. 496. *Roxb. Hort. Beng.* p. 31; *Fl. Ind.* vol. ii. p. 319. *Wight & Arn. Prodr. Fl. Penins. Ind. Or.* p. 296. *Wall. Cat.* n. 595. *Grah. Cat. Bomb. Pl.* p. 64. *Kurz For. Fl. Brit. Burm.* vol. i. p. 397. *Brand For. Fl. N.W. Ind.* p. 161. *Aitchis. Cat. Panjab Pl.* p. 53. *Beddome. Forest. Man. S. Ind.* p. xciii. *Gamble Man. Ind. Timb.* p. 140. *Watt, Dict. Econom. Prodr. Ind.* vol. i. p. 425. *Baker in Hook. f. Fl. Brit. Ind.* vol. ii. p. 284.—Tab. nostr. 6818.

B. purpurea, *Wall. Cat.* n. 5795 (*in part.*)

Phanera variegata, *Benth. Pl. Jungh.* p. 262.

Choromna Mandaru, *Rheede Hort. Mal.* vol. i. p. 57, t. 32.

Var. *candida*, floribus albis petalo antico viridi pallido suffuso. *Ham. in Trans. Linn. Soc.* vol. xiii. p. 496 (*excl. cit. Willd. & Ait.*); *Wight & Arn. Fl. Penins. Ind. Or.* p. 296.

B. candida, *Roxb. Hort. Beng.* p. 31; *Fl. Ind.* vol. ii. p. 318 (*excl. cit. Willd.*), *Wall. Cat.* n. 5796.

At t. 6818 of this work is figured one of the brightly coloured varieties of this beautiful plant, and between that and even darker purple-flowered, and the one here given there are innumerable gradations of colour. Whether, however, these sports of colour are found in the native state of the plant is doubtful, for the species is even more frequently met with in a cultivated than in a native state. Roxburgh, who first described the white variety as a species, gives no other habitat than gardens in India; he, however, supposed it to be the *B. candida* of Willdenow, which is a variety of the closely allied and almost equally common *B. purpurea*, Linn.; an error into which Hamilton, who was the first to describe it as a variety of *B. variegata*, also fell.

Under Plate 6818 I have given some account of the introduction of *B. variegata* into England, and of the uses

to which parts of the tree are put; to which may be added that it yields (like other members of the genus) the gum known as Sem or Semla gónd, which has the properties of cherry gum, as stated in Dr. Watt's invaluable Dictionary of the Economic Products of India, a work which had not appeared when the aforesaid account for this Magazine was drawn up. I have now to add a curious fact in relation to the distribution of *B. variegata*, which is, that though common in a wild state in the jungles of India from the Indus river to Burma, ascending to 4000 ft., and extending to Malabar, it is not recorded as a native of Ceylon. This is the more remarkable, if it is true (see Watt, l. c.) that it is often represented in Budhist sculptures, a statement that must, however, be checked by the fact that specific differences, especially in such a genus as *Bauhinia*, may be supposed to have eluded the sculptor's eye, and that very different *Bauhinias* would serve his purpose equally well. The absence of *B. variegata* in Ceylon is not, however, an isolated fact in the Flora of that Island; for of this large representative Indian genus (embracing 37 species) only two,* *B. tomentosa*, L. and *racemosa*, Lam., are recorded by Trimen as certainly indigenous in it, and one other, the common Asiatic and Malayan *B. anguina*, as doubtfully native.

B. variegata var. *candida* was raised from seed received in 1883 from the Right Hon. Sir Mountstuart Grant Duff, who, when Governor of Madras, sent many interesting plants and other seeds to Kew. It flowered in March of the present year, and the flowers were very frequent.—*J. D. H.*

Fig. 1. Stamen and pistil; 2 and 3, anthers, *all enlarged*; 4, reduced fig. of whole plant as grown in the Palm House, Kew.

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* In the Flora of British India *B. purpurea* is stated to be a native of Ceylon, on the authority of a specimen in Herb. Kew from the late Col. Walker, which is, however, most probably from a garden plant.

Vincent Brooks, Day & Son Imp

Tab. 7313.

ARMERIA latifolia.

Native of Portugal.

Nat. Ord. Plumbagineæ. Tribe Staticeæ.

Genus Armeria, *Willd..*; (*Benth. & Hook. f. Gen. Pl.* vol. ii. p. 626.)

Armeria (Plagiobasis), *latifolia*; rhizomate crasso diviso reliquiis fuscis foliorum vetustorum dense operto, foliis 3–5-pollicaribus anguste-oblanceolatis in petiolum angustatis acutis v. acuminatis glaucescentibus 3–7-nerviis, scapo elato glaberrimo, capitulo magno globoso, vagina longissima, involucri bracteis pallide brunneis scariosis dorso coriaceis infimis linearibus v. triangulari-lanceolatis acutatis, coeteris ovato-oblongis cuspidatis, tubo calycis basi fere æqualis pedicello breviore obscure costato, costis pilosis, limbi aristis brevibus, petalis obovatis pallide roseis, stylis medio patentim pilosis.

A. latifolia, *Willd. Enum. Hort. Berol.* vol. i. p. 334. *Boiss. in DC. Prodr.* vol. xii. p. 684. *Willk. & Lange Fl. Hispan.* vol. ii. p. 365.

A. Cephalotes, *Link & Hoffm. Fl. Portug.* p. 441.

A. scorzonerifolia, *Link, in Schrad. Journ.* vol. iii. (1810), p. 60.

Statice Pseudo-Armeria, *Murr. Syst. Veg.* p. 319. *Broteri Fl. Lusit.* vol. i. p. 488. *Jacq. Hort. Vindob.* vol. i. t. 42.

S. Cephalotes, *Ait. Hort. Kew*, ed. 1. Ed. 2, vol. ii. p. 684.

S. lusitanica, *Poir. Iter.* vol. ii. p. 173.

The genus *Armeria* is the subject of a very elaborate monograph by Boissier, in De Candolle's Prodromus, where upwards of fifty species are described, nearly one half of which (twenty-two) are founded by himself. Amongst these it is so difficult to distinguish what other botanists would regard as distinct species, that Bentham says of the genus in Gen. Plant., "some authors enumerate more than fifty, others would reduce them to six or seven." Respecting Boissier's work in this genus, it is right that I should record that, with his wonted candour, he told me himself, he would, if he had the opportunity of revising it, reduce the species considerably; and indeed in his "Flora Orientalis" he has reduced six of his Oriental species of *Armeria* to two.

Turning to Willkomm and Lange's "Flora Hispanica,"

I find that all Boissier's species of that region are maintained, and several added, amounting to no fewer than thirty-four species in all, which, whether all specifically different or not, are classified with great skill and judgment, so that it is not difficult to determine these by his clavis. Amongst those of both works is *A. latifolia*. It is very difficult to distinguish it by the descriptions from the common *A. plantaginea* of Western Europe, than which it is a much more robust plant, with usually broader leaves and more numerous nerves, larger heads, more coriaceous bracts, and longer pedicels and calyx lobes. There are excellent specimens of it in the Kew Herbarium, from Sir Walter Trevelyan, Welwitsch, and others, gathered in the neighbourhood of Lisbon. In some of these the leaves attain three-fourths of an inch in breadth, being shorter, broader and more acuminate than in the plant here figured, and the sheath below the head is longer. The character of leaves remotely denticulate given by Boissier and Willkomm and Lange, is very obscure in some specimens, and non-existent in others.

I should observe here that the *A. Cephalotes* of this work, t. 4128 (not of Link.) under which *A. latifolia* is erroneously entered as a synonym, is referred by Boissier to the Algerian *A. mauritanica*, Wallr. This being so, the figure of the calyx is very faulty, in wanting the spur of that species.

According to Miller, *A. latifolia* was in cultivation in his garden before 1740, and it has been repeatedly introduced into England at intervals subsequently. The specimen here figured flowered in the Royal Gardens, Kew, in April, 1893, having been received from those of Edinburgh.—*J. D. H.*

Fig. 1, Flower and top of pedicel; 2, petal and stamen; 3; stamen; 4, ovary:—*All enlarged.*

6

5

4

2

3

1

M.S del, J.N.Fitch lith.

Tab. 7314.

MEGACLINIUM MINUTUM.

Native of Sierra Leone.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Megaclinium, *Lindl.*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 505.)

Megaclinium *minutum*; pumilum, pseudobulbis confertis ovoideo-oblongis 2-phyllis lævibus, foliis lineari-oblongis obtusis subacutis v. apice 2-denticulatis, scapo brevi inclinato, spica subcernua multiflora, rachi lineari angusta minute lepidota crenulata brunneo-purpurea, bracteis triangularibus acutis reflexis, ovario brevissimo perianthioque ferrugineo-purpureis pubescentibus, sepalis lateralibus latissime triangularibus acuminatis recurvis, dorsali viridi lateralibus triplo longiore oblongo obtuso subrecurvo, mento magno globoso, petalis subulatis, labello oblongo cordato obtuso recurvo pallide flavo, columna brevissima alis minutis incurvis.

M. minutum, *Rolfe in Kew Bulletin*, No. 73 (1893), p. 5.

The genus *Megaclinium*, which consists of about a dozen species, is the chief African representative of the large Asiatic genera *Bulbophyllum* and *Cirrhopetalum*, which are very scantily represented on the African continent. It is, in fact, only separated from *Bulbophyllum* by the remarkable dilatation of the rachis of the spike, which attains a much greater development in *M. maximum*, Lindl. (Tab. 4028), and an extreme dilatation in *M. purpuratum*, Lindl. (Tab. 5936). Dr. Reichenbach, not without reason, regarded *Megaclinium* as a section of *Bulbophyllum*, as he did *Cirrhopetalum*; but in Botany, as in other biological sciences, if objective characters, though of little morphological value, which distinguish whole groups, are not taken into account in the formation of genera, of Monocotyledons especially, the result would be chaotic agglomerations of forms under a common generic name.

M. minutum was discovered on the top of the Sugarloaf Hill, Sierra Leone, at about 3000 ft. elevation, by G. F. Scott Elliott, Esq., M.A., F.L.S., Naturalist to the Anglo-

French delimitation Commission, who sent plants to Kew, which flowered in a stove in August, 1892. It is the smallest known species.—*J. D. H.*

Fig. 1, Lateral and 2, front view of flower; 3, column petals and lip; 4, column; 5, anther; 6, pollinia :—*All enlarged.*

3

4

2

1

M.S.del, J.N.Fitch lith.

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Tab. 7315.

SAXIFRAGA MEDIA.

Native of the Pyrenees.

Nat. Ord. Saxifragaceæ. Tribe Saxifrageæ.

Genus Saxifraga, *Linn.*; (*Benth. & Hook. f. Gen. Pl.* vol. i. p. 635.)

Saxifraga (Aizoon), *media*; foliis brevibus cauli subelongata densissime rosulato-imbricatis· glaucescentibus patulo-recurvis cartilagineis spathulato-obovatis oblongisve acutis marginibus supra medium crassis infra medium pectinatim dentatis facie glabris dorso una cum pedunculo foliis caulinis numerosis spathulatis et inflorescentia glanduloso-pubescentibus, racemo laxifloro, pedicellis patulis, bracteis bracteolisque linearibus obtusis, floribus parvis, calycis infra medium 5-secti lobis obtusis petala obovata crenulata rubro-purpurea paullo superantibus, filamentis brevibus subulatis, antheris inclusis, ovarii semisuperi stylis brevibus, stigmatibus majiusculis subglobosis.

S. media, *Gouan, Illustr. & Obs. Bot.* p. 27. *Lamarck, Encycl.* vol. vi. 675; *Illustr.* t. 273, f. 6. *D. Don, in Trans. Linn. Soc.* vol. xiii. p. 396, *partim*. *DC. Prodr.* vol. iv. p. 20. *Sternb. Rev. Saxifr.* p. 6.

S. calyciflora, *Lapeyr. Fl. Pyren.* p. 28, t. 12. *Benth. Cat. Pl. Pyren.* p. 118. Chondrosea calyciflora, *Haw. Enum. Saxifr.* p. 13.

A very distinct species of the *Aizoon* group, most nearly allied to *S. aretioides*, Lap. a native of the same mountains, though differing widely in the inflorescence and flowers, as a reference to the figure of that plant in this work (Tab. 5849) shows in foliage and form, &c., of the leaves they are nearly identical. Indeed, in their native country, these species appear to hybridize freely, as was first pointed out by Bentham in his Catalogue of Pyrenean plants cited above, where he has a var. *hybrida* which thus originates, and to which he refers as *S. ambigua*, DC. and *S. luteo-purpurea*, Lapeyr. (a name which Don, suspecting its hybrid origin, arbitrarily changed to *Lapeyrousii*.

Regarding these hybrids Bentham remarks that they are never found except where the two parent species occur, when they present a suite of intermediates, amongst which it is rare to find any two quite alike. On the other hand, he says of *S.*

calyciflora (*media*), "a constant species, though intermediate between *S. adscendens*, Willd. and *S. ajugæfolia*, Linn. If it is a hybrid, it is one that by its constancy, its fixity, and its abundance, must take rank as a species. It is common in many parts of the chain with *S. adscendens* and *ajugæfolia*, &c., but sometimes, quite alone, as in the south face of Port Negro."

It only remains to add that by Sibthorp, Don, De Candolle, and others, it was regarded as the same with *S. porophylla*, Bertol., which takes its place, as it were, in Italy, and extends through Dalmatia and the Banat to Mt. Olympus in Bithynia, and which may be distinguished by its spicate inflorescence. *S. calyciflora* flowered in a cold frame in the Royal Gardens in April of this year.—*J. D. H.*

Fig. 1, Upper and 2 lower surface of a leaf; 3, pedicel, bracteoles and flower; 4, petal; 5 and 6, stamens; 7, ovary:—*All enlarged.*

M S del, J.N.Fitch lith

L Reeve & C° London.

SCHIZOCODON SOLDANELLOIDES.

Native of Japan.

Nat. Ord. Diapensiaceæ.—Tribe Galacineæ.

Genus Schizocodon, *Sieb. & Zucc.* ; (*Benth. & Hook. f. Gen. Pl.* vol. ii. p. 620.)

Schizocodon, *soldanelloides*; foliis orbicularibus basi cuneatis v. subcordatis, grosse dentatis dentibus apiculatis, supra lucidis, nervis subtus prominulis, scapo 4–6-floro, bracteis linearibus, sepalis oblongis obtusis ciliolatis. corolla rosea, staminodiis linearibus pubescentibus, stylo crasso persistente.

S. soldanelloides, *Siebold & Zucc. in Abhandl. Akad. Wiss. Mun.* vol. iii. p. 723, t. 2, *Maxim. in Bull. Acad. Imp. Petersb.* vol. xvi. p. 225, and *Mel. Biol.* vol. vi. p. 273 and vol. viii. p. 19. *Franch & Savat, Enum. Pl. Japon*, vol. i. p. 298. *Miq. Prolus. Fl. Japon*, p. 253. *Journ. Hortic. Ser.* 3, vol. xxvi. p. 28, f. 55. *Gard. Chron.* (1893), vol. i. p. 415, f. 59.

The beautiful little plant here figured is of great botanical interest, as belonging to a very small Natural Family of doubtful affinity, consisting of six genera, of which three are represented by single species, and the other three having each only two species. The Order is divided into two tribes, of which one, *Diapensieæ*, consists of the two genera, *Diapensia*, Linn. (see Tab. 1108) and *Pyxidanthera*, Mich. (Tab. 4592), with a persistent corolla and no staminodes; the other, *Galacineæ*, of four genera, having a deciduous corolla, and five staminodes, contains *Shortia*, Torr. and Gray (Tab. 7082); *Galax*, Linn. (Tab. 754); *Berneuxia*, Decne. a Tibetan genus hitherto unfigured; and *Schizocodon*. The great interest of the Order centres in the *Galacineæ*, because of the singular distribution of the genera between the Floras of Japan and Eastern North America, which has, as pointed out by A. Gray, afforded such strong evidence of an early botanical affinity between those countries, which can only be accounted for by the hypothesis that the genera inhabited a country far north of their present abiding places, to which latter they were

driven south by the cold of the glacial period. Thus, of the two species of *Shortia* one is Japanese, the other confined to a very restricted area of the mountains of Carolina, and *Schizocodon* is the Japanese representative of *Galax*, which is also confined to the mountains of Carolina.

S. soldanelloides is a native of stony places in the mountain regions of Japan. It is probably the only species of the genus, for of the other, *S. ilicifolius*, Maximovicz, its author says that it is too near to *soldanelloides*, and perhaps only a mountain variety of it.

There is indeed considerable variation in the size, form, and toothing of the leaves of the latter plant, in the colour of the flowers, from white to red, and in the length of the stamens. These in the specimens figured have very short filaments inserted high up in the tube, whilst in others the filaments are quite thrice as long, and inserted between but above the staminodes, and are sometimes hairy.

The specimen figured was sent to Kew in March, 1892, by Capt. Torrens, of Baston Manor, Hayes, Kent, who afterwards presented it to the Royal Gardens.—*J. D. H.*

Fig. 1, Calyx and bracts; 2, corolla laid open; 3 and 4, stamens; 5, staminode; 6, ovary; 7, transverse section of ovary:—*All enlarged.*

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Tab. 7317.

RHODODENDRON Falconeri, var. eximia.

Native of Bhotan.

Nat. Ord. Ericaceæ.—Tribe Rhodoreæ.

Genus Rhododendron, *Linn.*; (*Benth. & Hook. f. Gen. Pl.* vol. ii. p. 599.)

Rhododendron (Eurhododendron) Falconeri, *Hook. f. Rhod. Sikkim Himal.* t. 10; *in Journ. Hort. Soc. Lond.* vol. vii. p. 76, 97. *Hook. Bot. Mag.* t. 4924. *Fl. des Serres*, vol. v. (1849), t. 479–80 and vol. xi. t. 1166–7. *Regel Gartenfl.* t. 658. *Clarke in Hook. f. Fl. Brit. Ind.* vol. iii. p. 465.

R. venosum, *Nutt. in Hook. Kew Journ. Bot.* vol. v. (1853), p. 365.

Rhododendron, *Griff. Itin. Notes*, p. 140, No. 654.

Var. *eximia*; corolla rosea fundo intus immaculata.

R. eximium, *Nutt. l. c.* p. 304.

Of all the species of Sikkim Rhododendrons, numbering nearly thirty, *R. Falconeri* has proved to be one of the most hardy in England, and it is at the same time the largest of the genus, for though often growing as a gregarious shrub, it more frequently attains thirty feet in height, with a truly arboreous habit. Plants raised from seeds which I sent home in 1849, grown in the open air, with no other covering than a mat at night, flowered in 1856, both at Liverpool and Bagshot; and at the present time (April) I am informed of trees twenty feet and more in height being loaded with blossoms in Cornwall and in Surrey, under no protection whatever. To these attributes must be added that it is by far the noblest of the hitherto discovered species; for neither in Asia nor America does any one approach it in sturdiness of trunk and branches, in the dark green deeply reticulated upper surface of the coriaceous leaves, which attain a foot in length, or in the rich rusty-brown woolly clothing of their under-surface and petiole; and it has further the largest flowers of those in which the flowers are disposed in massive trusses.

As with so many of its congeners, it is very variable,

and singularly enough the most aberrant variety is the plant on which I founded the species, namely, that figured at t. 10 of "The Rhododendrons of the Sikkim Himalaya." This was in truth a starved state of the plant, growing in a most bleak situation, on the top of Tonglo, a mountain on the Nepal frontier of Sikkim, 10,000 ft. above the sea, and in which the pure white corollas were only $1\frac{1}{4}$ in. across the mouth; they had no basal purple spot, but had very large dark brown anthers, and a stigma nearly a quarter of an inch in diameter. It was in fact one of the first of the Sikkim Rhododendrons that I had seen, and I afterwards found it elsewhere in Sikkim abundantly, in the condition represented at t. 4924 of this work.

Of varieties in colour, the most frequent is from white to pale lemon-colrd., with or without a deep purple basal spot within the corolla, then a very pale rose especially on the buds. The fine pink represented in the accompanying plate is quite new to me, and may be a characteristic of the *R. eximium* of Nuttall of Bhotan, under which name the specimen was sent to Kew by A. O. Walker, Esq., of Nant y Glyn, Colwyn Bay, Carnarvonshire. *R. eximium* is, I need hardly add, cospecific with *Falconeri*, differing in the above-mentioned points, also in often bearing the rich rusty-brown fluff on the upper surface of the young leaves up to their full development.—*J. D. H.*

Fig. 1, Outer bracts; 2, floral ditto; 3, ovary style and stigma; 4 and 5, anthers:—*All enlarged.*

M. S. del. J. N. Hart

Vincent Brooks, Day & Son Lith.

Tab. 7318.

DOLICHOS, simplicifolius.

Native of Tropical Africa.

Nat. Ord. Leguminosæ.—Tribe Phaseoleæ.

Genus Dolichos, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 540.)

Dolichos *simplicifolius*; caudice crasso tuberoso, ramis caulibusve herbaceis erectis simpliciusculis foliosis foliisque utrinque pilosulis, foliis 1-foliolatis brevissime petiolulatis, foliolo spithameo oblongo-lanceolato obtuso integro tricostato stipulis oblongis obtusis v. subacutis herbaceis, floribus axillaribus fasciculatis erectis, pedicellis ½-pollicaribus floribus æquilongis pilosis, calycis tubo hemispherico, dentibus brevibus ovatis acutis, 2 superioribus approximatis alterius connatis obtusis, vexillo orbiculari pallide roseo, alis oblongis apice rotundatis saturate roseis, carina acinaciformi alis subæquilonga apice acuta.

D. simplicifolius is an aberrant member of a large cosmopolitan tropical and subtropical genus which contains about thirty species, many of which are, from the absence of specimens with pods, very ill-defined. The two remarkable characters of *D. simplicifolius* are the unifoliolate leaves, those of all hitherto known species being 3-foliolate, and the woody tuberous rhizome or caudex, which gives off annual herbaceous erect stems. This latter character, common to several tropical African species, is, I suspect, to be connected with the conditions under which they exist, supposing these to be grass or bush lands annually or frequently devastated by fire; for the same habit of growth is very frequent in various genera of plants in the regions of Upper India skirting the base of the Himalaya, the vegetation of which is frequently burnt.

The tubers of *D. simplicifolius* were sent to Kew in June, 1892, by John Buchanan, Esq., C.M.G., along with various other tubers and bulbs collected in the Shiré Highlands of tropical S. Africa (lat. about 15° S., long. 35 E.). Soon

after arrival it sent up herbaceous stems two to three feet high, and flowered in a stove in April of the present year. —*J. D. H.*

Fig. 1, Calyx, stamen and stigma ; 2, standard ; 3, base of calyx and ovary : —*All enlarged.*

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Tab. 7319.

CYPRIPEDIUM MONTANUM.

Native of California.

Nat. Ord. Orchideæ.—Tribe Cypripedieæ.

Genus Cypripedium, *Linn.*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 634.

Cypripedium (Foliosae) *montanum*; glanduloso puberulum, foliis ovato-oblongis v. oblongo-lanceolatis acuminatis, floribus 1–3 sessilibus, bracteis foliaceis, sepalis labello subduplo longioribus dorso costatis petalisque longioribus fusco-rubris, dorsali lanceolato acuminato, lateralibus connatis apicibus liberis, petalis basi intus pilosis, labello oblongo vix a latere compresso apice rotundato albo purpureo-striato, staminodio stigmate longiore ovato breviter stipitato aureo rubro-maculato supra sulcato, capsula erecta.

C. montanum, *Dougl. ex Lindl. Gen. & Sp. Orchid.* p. 528. *S. Wats. Bot. of Californ.* vol. ii. p. 138.

C. occidentale, *S. Wats. in Proc. Am. Acad.* vol. xi. (1876), p. 147. *Elwes in Gard. Chron* (1877), vol. i. p. 725, f. 117. *Regel Gartenfl.* (1881), p. 35, t. 1036. *Orchidophile* (1881), p. 56.

Cypripedium montanum is the representative in Western America of the common *C. pubescens* of the Eastern States; and is so closely allied to the latter plant that except in its lip being white (not yellow) and its flowers fragrant, there is little to distinguish them. And with regard to the latter character it is to be observed that *C. parviflorum* of the Eastern States which has fragrant flowers has by some American botanists been regarded as a variety of *C. pubescens*, from which, however, it differs in the lip not being laterally compressed. The only other N. American *Cypripedium* with a white lip is *C. candidum* of the Eastern States (Tab. 5855), which has crowded erect lanceolate leaves, small solitary scentless flowers, and short green sepals and petals.

S. montanum is described by Sereno Watson as being common in the mountains of Western North America, from the Mariposa and Santa Cruz valleys of California to Washington Territory, flowering in June and July; but it

has a much wider range than this, for it appears to be common in Vancouver Island and the Fraser river, in British Columbia (lat. 50° N.), where probably it was found by Douglas, who discovered the species probably in the year 1830.

I am indebted to my friend, H. J. Elwes, Esq., F.L.S., of Colesborne, Andoversford, Gloucestershire, for the specimen figured, which that gentleman received from Oregon. As far as I am aware this species had not previously been in cultivation in Europe, nor had it been anywhere figured. It flowered in April of the present year, and was very fragrant—*J. D. H.*

Fig. 1, Front, and 2, side view of column:—*Both enlarged.*

M.S del. J.N. Fitch lith.

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Tab. 7320.

TILLANDSIA microxiphion.

Native of Monte Video.

Nat. Ord. Bromeliaceæ.—Tribe Tillandsieæ.

Genus Tillandsia, *Linn.*; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 669.)

Tillandsia (*Anoplophytum*) *microxiphion*; caulibus brevibus strictis erectis dense foliosis, foliis linearibus strictis pallide viridibus lepidotis facie canaliculatis dorso rotundatis apice subpungentibus infimis patulis reliquis ascendentibus, spicis densis paucifloris, bracteis ovatis pallide rubris calyce brevioribus dorso valde convexis, sepalis oblongis pallidis cartilagineis, petalis violaceis lingulatis calyce sesqui-longioribus apice patulis, staminibus petalis multo brevioribus, pistillo staminibus æquilongo, ovario ovoideo, stylo elongato apice stigmatoso tricuspidato.

This is a new species of the large genus *Tillandsia*, belonging to the small subgenus *Anoplophytum*, which is characterized by its dwarf habit, long style, and few multifarious flowers. Of this subgenus *T. stricta*, Soland (Bot. Mag. tab. 1529) *T. dianthoidea*, Rossi, and *T. pulchella*, Hook. (Bot. Mag., Tab. 5229), have long been known in cultivation. The present plant is nearest *T. stricta*, from which it differs mainly by its shorter leaves. It was first found about 1890, during a short visit which he paid to Monte Video, by Monsieur Edouard André, who is so well known as an authority on *Bromeliaceæ*, and who has discovered and introduced into cultivation so many new species. He sent a plant of it to the Royal Gardens, Kew, at the end of 1890, and it flowered for the first time in a stove in February, 1893.

Descr. *Stems* short, tufted, erect, densely covered with leaves. *Leaves* linear, rigid, pale green, lepidote, about an inch long, deeply channelled down the face, rounded on the back, almost pungent at the apex, densely crowded, the lower spreading, the upper ascending. *Inflorescence* a dense terminal few-flowered spike; bracts ovate, pink, glabrous, longer than the calyx. *Sepals* oblong, whitish,

cartilaginous. *Petals* lingulate, violet-purple, half as long again as the calyx, spreading at the apex. *Stamens* much shorter than the petals. *Pistil* about as long as the stamens; ovary ovoid, style elongated, subulate, tricuspidate at the stigmatose apex.—*J. G. B.*

Fig. 1, Bract and flower; 2, lepidote scales; 3, petal with stamens; 4, ovary; 5, section of ditto; 6, ovule:—*All enlarged.*

M.S. del. J.N. Fitch lith.

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Tab. 7321.

PHALÆNOPSIS TETRASPIS.

Native of the Andaman Islands.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Phalænopsis, *Blume*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 573.)

Phalænopsis, *tetraspis*; acaulis, foliis 6–12 pollicaribus obovatis v. cuneato-obovatis apicibus acutis recurvis coriaceis 7-nerviis, scapo foliis breviore simplici v. ramoso 3–5 flore, floribus 2–2½ poll. diam. niveis, sepalis basi columnæ insertis oblongo-obovatis obtusis v. subacutis, petalis sepalis consimilibus at paullo minoribus, labello sessili sepalis breviore, hypochilo brevi appendicibus 2 erectis carnosis truncatis apice retusis aureis latere exteriore cuspidatis instructo et acu erecta inter-appendices posita, epichilo lineari recurvo apice 2-lobo supra convexo ultra medium villoso, columna medio constricta.

P. tetraspis, *Reichb. f. Xen. Orchid.* vol. ii. p. 146; *et in Gard. Chron.* (1881), vol. ii. p. 562, 656. *Rolfe in Gard. Chron* (1886), vol. ii. p. 277. *Hook. f. Fl. Brit. Ind.* vol. vi. p. 30. *Veitch, Man. Orchid.* Part vii. p. 41.

P. tetraspis was, up till the publication of Veitch's invaluable manual of Orchideous plants, a very imperfectly known species. In the "Flora of British India" I have alluded to it as having flowers (which I had not seen) like those of *P. speciosa* (also a native of the Andaman Islands), but waxy-white with two 2-awned basal calli on a hairy disk.

A comparison with *P. speciosa* (see Warner, Orchid Album, vol. iv. t. 158, and Veitch, l. c. p. 38) shows how strong is the similarity between these species, the chief botanical difference lying in the structure of the appendages (or basal lobes) of the lip, which is in *P. speciosa* simply truncate with reflexed margins. In colour these species differ notably, that of *speciosa* being an amethystine purple, or rose-purple in some varieties.

According to Veitch, *P. tetraspis* was discovered somewhere in the Malay Archipelago by Thos. Lobb, and was first described by Reichenbach from dried flowers. In 1881 living plants were sent by Major-General Berkeley to Mr. Bull from the Andaman Islands, where it grows on

trees in muddy swamps in great luxuriance. From the evidence of a drawing made by Col. Lister, lent me from the Calcutta Herbarium (since the publication of the Orchids in the "Flora of British India") it is a native of Chittagong. The plant here figured was sent to Kew in 1892 from Port Blair, in the Andamans, by E. Horace Man, Esq., C.I.E., Deputy Superintendent, Port Blair and Nicobars. It flowered in May of the present year.—*J. D. H.*

Fig. 1, Lip and column; 2, hypochile and base of epichile; 3, column; 4, anther; 5, pollinia:—*All enlarged.*

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Tab. 7322.

SENECIO sagittifolius.

Native of Uruguay.

Nat. Ord. Compositæ.—Tribe Senecionideæ.

Genus Senecio, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 446.)

Senecio (*Jacobæa*) *sagittifolius*; giganteus, herbaceus, elatus, robustus, biennis, araneosus, caule simplici erecto, foliis radicalibus maximis ovato-cordato- v. saggittato-lanceolatis acutis crenato-dentatis undulatis in petiolum late alatum ala pinnati-lobata angustatis, costa infra medium superne alte bialata alis dentatis, foliis superioribus sessilibus e basi rotundata lanceolatis integerrimis, corymbo maximo ramis pedicellisque patentibus robustis, capitulis 1½-2 poll. latis, involucri laxe lanati calyculati cylindracei bracteis 20-25 linearibus obtusis, ligulis radii 20-40 linearibus obtusis primulinis tubo triplo longioribus, disci aurei corollis breviter 5-dentatis dentibus erectis, acheniis glabris, pappo non copioso albo.

S. sagittifolius, *Baker in Mart. Fl. Bras.* vol. vi. pars. iii. p. 315. *André* in *Rev. Hortic.* (1892), p. 53, fig. 16, 17. *Masters in Gard. Chron.* (1893), vol. i. pp. 355, 357, figs. 50, 51.

Very variable as the groundsels are in habit and foliage, not one of its allies amongst the herbaceous species of that vast genus is so remarkable in respect of stature and size of foliage as *S. sagittifolius*; added to which the frills on the costa of the leaves above are, as far as I am aware, unique in the genus. I am indebted to M. André for a reproduction (introduced into our figure) of a photograph of the plant, which that gentleman exhibited at a meeting of the Societé Nationale d'Horticulture de France, and which, he informed me, represents a specimen eight feet in height. I have not been able to introduce a leaf of the natural size into the accompanying plate; but one produced at Kew measured nearly two feet in length, including the winged petiole; the blade being one foot by eight inches broad at the base, and the corymb of flowers was of the latter breadth. According to the description in Martius' "Flora Brasiliensis," it attains in its native country twelve feet in height. There is a graphic representation in the "Revue Horticole (l. c.) of a landscape in Uruguay with groups of

the plant in situ. This is reproduced in "The Gardener's Chronicle."

S. sagittifolius is most nearly allied to *S. Hualtata*, Bertero (in *DC. Prodr.* vi. 417), a native of ditches in Chili, a more slender plant, in which the leaves are fifteen inches long, of a rhombic hastate form, the heads of flowers much smaller, and the ray flowers only 10 to 12 in number.

S. sagittifolius is a native of marshy places in Uruguay, where it was discovered, I believe, by M. Gibert, an energetic explorer of the botany of that region, by whom specimens were sent to the late Sir W. Hooker, which are preserved in the Kew Herbarium.

The specimen here figured was presented to the Royal Gardens in 1892 by M. André, the introducer of the species, who found it near Monte Video, growing in marshes. Mr. Watson, under whom it flowered, in a cool greenhouse, in March of the present year, informs me that it is apparently perennial, having sent up new growths from the base of the old stem; these, however, perished, after the flowering of the plant, which did not ripen its seed.—*J. D. H.*

Fig. 1, Flowers of ray; 2, do. of disk; 3, pappus hairy; 4, stamens; 5, style branches:—*All enlarged.*

M S.del.J.N.Fitch.lith

Tab. 7323.

VERONICA Fairfieldii.

Native of New Zealand.

Nat. Ord. Scrophularineæ.—Tribe Digitaleæ.

Genus Veronica, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 964.)

Veronica (*Hebe*) *Fairfieldii*; fruticulus pedalis ramosus, caule ramisque divaricatis robustis atris, foliis coriaceis petiolatis late ovatis obtusis crenato-dentatis glaberimis rubro-purpureo marginatis, floribus in spicis paniculatis breviter pedunculatis glanduloso-puberulis dispositis sessilibus pallide lilacinis, bracteis calyce brevioribus lineari-oblongis, calycis segmentis angustis linearibus, corollæ pallide lilacinæ tubo brevissimo lobis sub-æqualibus rotundatis, antheris vix exsertis aureis late ovatis, ovario piloso.

V. Fairfieldii, *Hort. Martin.*

The affinities of *Veronica Fairfieldii* are unquestionably close with *V. Hulkeana* (Tab. 5484) and *V. Lavaudiana* (Tab. 7210), both small shrubs of the *Hebe* section, in which the flowers are sessile, the corolla-tube very short, its lobes subequal and broad, and the scarcely exserted anthers are broadly ovate and yellow, and it is in many respects so curiously intermediate between these two species as to suggest a hybrid origin. The short branches, and the leaves in size, form, petiolation, crenation, and the purple margins, almost precisely accord with those of *V. Lavaudiana*, from which species it differs in the paniculate (not at all corymbose) inflorescence, and in the colour of the corolla. On the other hand, the inflorescence and colour of the corolla are exactly those of *V. Hulkeana*, which is a much larger laxly branched species, with dark green concolorous leaves, one and a half to two inches long, rounded at the base, and strongly serrate; and with very short, almost glabrous, calyx-segments.

I regret to say that I can give no further account of the origin of *V. Fairfieldii* than that it was received, under that name, by my friend Dr. Balfour, from Mr. Martin, of

the Fairfield Nursery (New Zealand), and that it is presumably a hybrid. The species does not exist in the Kew Herbarium, and I have searched in vain through the volumes of "The Transactions" of "The New Zealand Institute," where many lately discovered species have been described, for any account of it. It is one of rich collections of New Zealand Veronicas in the Edinburgh Botanical Gardens, when it flowered in May of the present year, as did a plant of it in my own garden (in Surrey), which was kindly given me by Dr. Balfour.—*J. D. H.*

Fig. 1, Portion of branch of panicle and flowers; 2, calyx and bracts; 3 and 4, stamens; 5, ovary :—*All enlarged.*

M S del, J.N Fitch lith.

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Tab. 7324.

ALLOMORPHIA Griffithii.

Native of the Malayan Peninsula.

Nat. Ord. Melastomaceæ.—Tribe Oxysporeæ.

Genus Allomorphia, *Blume*; (*Benth. & Hook. f. Gen. Pl.* vol. ii. p. 752.)

Allomorphia *Griffithii*; herbacea, subacaulis, rhizomate lignescente, foliis amplis orbicularibus profunde cordatis glanduloso-denticulatis 7-9 costatis clathratim nervosis supra flavo-viridibus subtus roseis nervis petioloque elongato brunneis puberulis, pedunculis strictis elongatis pedicellisque rubris puberulis, panicula elongata angusta, floribus subverticillatim fasciculatis patulis, calycis tubuloso-campanulati obtuse 4-dentato petalis orbiculatis albis duplo longiore, antheris subulatis basi profunde 2-fidis, disco tubuloso obtuse breviter 4-lobo, lobis rotundatis ciliolatis.

A Griffithii, *Hook. f. ex Naud. in Trans. Linn. Soc.* vol. xxviii. p. 74, t. 66, c. *C. B. Clarke, in Hook. f. Fl. Brit. Ind.* vol. ii. p. 527. *Cogn. Monogr. Melast.* p. 467.

Allomorphia is, a Burmese and Malayan genus of *Melastomaceæ*, established by Blume in 1831, upon a shrubby species (*A. exigua*) the *Melastoma exigua* of Jack, which extends from Penang and Malacca to the Philippine Islds.; the specific name, no doubt, applying to the small size of the flowers.

To this Bentham (in *Hook. Lond. Journ. Bot.* vol. i. p. 485) added a supposed Chinese species, *A. pauciflora*, which is however a species of *Blastus*, and Kurz (in *Flora* (1871) p. 290) a Burmese one, *A. hispida*, which, if his description of the "ovary adnate to the calyx at the base only" be correct, can hardly be congeneric (he possibly mistook a free tubular disk (such as is shown at fig. 4 of the plate here given of *A. Griffithii*, for the ovary). I have seen no specimens of it. A still more doubtful species is *A.? oralifolia*, Naud. (*in Trans. Linn. Soc.* vol. xxviii. p. 74) founded on the *Amplectrum oralifolium*, Naud. (in *A. Gray, Bot. U.S. Expl. Exped.* vol. i. p. 197) a Fijian plant. Two other undoubted species, *A. umbellulata*, (*Hook. f.*) and the subject of this plate made up all that was

known of the genus, until the very recent (1891) publication of Cogniaux's Monograph of *Melastomaceæ*, in which seventeen species are introduced, many of them Bornean.

A. Griffithii is a very handsome stove plant, of which there are specimens in the Kew Herbarium, collected by Col. Walker (so well known for his Ceylon botanical explorations) half a century ago at Malacca, whence it has also been sent by Griffith and Maingay.

The specimen here figured arrived at the Royal Gardens from Penang, in a box of living plants sent by Mr. C. Curtis, Assistant Superintendent of Gardens and Forests, in 1892, and it flowered in June of the present year. Mr. Watson informs me that it grows very slowly.—*J. D. H.*

Fig. 1, Flower; 2 and 3, stamens; 4, ovary disk and style; 5, vertical section of ovary and disk:—*All enlarged.*

Tab. 7325.

HAPALINE Brownei.

Native of the Malayan Peninsula.

Nat. Ord. Aroideæ.—Tribe Colocasieæ.

Genus Hapaline, *Schott*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 977.)

Hapaline *Brownei*; foliis ovatis ovato-lanceolatisve attenuato-acuminatis profunde cordatis marginibus crispato-undulatis supra læte viridibus bullatis subtus pallidis, lobis basalibus dimidiam partem laminæ æquantibus rotundatis approximatis sinu angusto.

H. Brownei, *Hook. f. in Fl. Brit. Ind.* vol. vi. p. 520.

Hapaline is a very singular genus of Aroids, two species of which only are known, *H. Benthami* and *H. Brownei*. These closely resemble one another, differing chiefly in foliage, the leaf of *H. Benthami*, which is a native of Burma, and also of the Malay Peninsula, being hastate, whilst that of *H. Brownei* is deeply cordate. Minor differences appear to exist in the form of the blade of the spathe, that of *Benthami* being narrower, and more oblong; but the latter plant is only known from indifferent dried specimens, and as the spathe alters somewhat in shape as it opens, much stress cannot be laid on this character.

The most peculiar characters of *Hapaline* are the male and female inflorescences, which though referable to the typical structures of these organs that prevail in the tribe *Colocasieæ*, present extreme forms of these. The male flowers consist of oblong peltate scales scattered over the upper exposed part of the spadix, bearing on their under surface, close to the margin, six or eight most minute globose anthers. The female flowers consist of solitary ascending ovaries distantly inserted in the long lower part of the spadix, where it is adnate to the tube of the spathe which tightly encloses it.

The species is named after Mr. N. E. Browne, A.L.S., Assistant in the Kew Herbarium, an officer distinguished for his knowledge of Aroids.

November 1st, 1893.

Tubers of *H. Brownei* were received at the Royal Gardens from Mr. C. Curtis, who also sent the subject of the preceding plate (*Allomorphia Griffithii*), and who discovered the species presumably in Penang. It flowered in a stove in May of the present year.—*J. D. H.*

Fig. 1, Base of spathe and spadix; 2, male flower seen from beneath; 3, portion of the same with an anther; 4, portion of spadix from the interior of the tube of the spathe, with two ovules; 5, ovary and portion of spadix cut vertically, showing the ovule:—*All enlarged.*

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Tab. 7326.

CALCEOLARIA andina.

Native of Chili.

Nat. Ord. Scrophularineæ.—Tribe Calceolarieæ.

Genus Calceolaria, *Linn.*; (*Benth. & Hook. f. Gen. Pl.* vol. ii. p. 929.)

Calceolaria (Eucalceolaria) *andina*; fruticulosa, tota glanduloso-pubescens, caule ramisque cortice flavido nitido tecto, foliis ovatis obovatisve apice rotundatis basi in petiolum brevem alatum angustatis crenato-dentatis supra rugosis nervis impressis, subtus pallidis, costa nervisque validis elevatis, floralibus parvis ovato-oblongis, panicula ampla corymbiformi multiflora, sepalis late ovatis, corollæ aureæ labio superiore parvo sepala vix superante, inferiore triplo longiore et latiore patente late cuneato-obovato latiore quam longo supra depresso basin versus aperto, antheris divaricatis, ovario depresso glanduloso-piloso.

C. andina, *Benth. in DC. Prodr.* vol. x. p. 220. *C. Gay Fl. Chil.* vol. v. p. 164.

C. Herbertiana, *var.* parviflora, *Lindl. Bot. Reg.* t. 1576.

Calceolaria andina belongs to a small group of the extensive genus called *Rugosæ* by Bentham, which includes about seven species, all natives of Chili. The group is (not very well) distinguished from its allies by being undershrubs rather than herbs, with rugose-toothed leaves narrowed into the petiole. *C. rugosa* (probably the same as *C. integrifolia*, Murray) figured at t. 2523 of this work is a member of the group, and Bentham refers doubtfully to it *C. alba*, Ruiz and Pav., figured at t. 4157. *C. andina* differs from all the others in the broad depressed lower lip of the corolla which is concave above and convex beneath. There is a very poor figure of a small-flowered state of it in the Botanical Register, under the name of *C. Herbertiana* var. *parviflora*, published in 1833, where it is stated by Lindley that it was raised from seed collected in the neighbourhood of Valparaiso by Cuming, and that it flowered in the garden of the Comte de Vandes. It is a common species in the Chilian Andes, and has been collected by many travellers in those

mountains. C. Gay in his Flora of Chili refers *C. verbascifolia*, Bertero, to it as a variety.

Seeds of *C. andina* were sent to the Royal Gardens in 1891 by Dr. F. Philippi of Santiago, Chili, an indefatigable botanist and explorer of the Chilian Andes, they were sown in pots, in a frame, and of the plants reared, that here figured flowered in the Alpine House in June of the present year. Its hardiness, or the contrary, has to be ascertained.—*J. D. H.*

Fig. 1, Calyx and ovary; 2, upper lip of corolla and stamen:—*Both enlarged.*

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Tab. 7327.

AMORPHOPHALLUS ONCOPHYLLUS.

Native of the Andaman Islands.

Nat. Ord. Aroideæ.—Tribe Pythonieæ.

Genus Amorphophallus, *Blume*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p 970.)

Amorphophallus *oncophyllus*; tubere depresso bulbillifero, petiolo elato, laminæ amplæ 3-pinnatisectæ foliolis lanceolatis basi tuberiferis, spathæ longe-pedunculatæ tubo late ovoideo basi rotundato albido viridi striato et maculato, limbo oblongo v. orbiculari-ovato inclinato v. recurvo rufo-purpureo maculis aureis medio virescentibus ornato, marginibus orem cingentibus revolutis, spadice sessile, inflorescentia mascula femineam aequante, appendice crasso inflorescentiam totam aequante conoideo stramineo. antheris brevibus, ovario 2–3-loculari, stigmatibus subsessilibus crassis 2–3-lobis.

A. oncophyllus, *Prain mss., ex Hook. f. Fl. Brit. Ind.* vol. vi. p. 576.

A strikingly handsome species, attaining a great size. According to a drawing made by a native artist in Calcutta, the tuberous root is ten inches in diameter, the petiole attains two to three ft. in height, and an inch in diameter, and is of a dark green blotched with greenish white. The leaf blade is three and a half feet in diameter, with leaflets six to eight inches long; the peduncle is about half the length of the petiole, but lengthened in the fruiting stage, and the spathe attains nearly a foot in length, its tube 3 in diam. and the blade 7 inches; the spadix also is a foot long, with the appendage $2\frac{3}{4}$ in. diam. and 7 in. in length. The colour of the spathe is much deeper brown purple than in the Kew plant, and the spots are pure yellow. Some allowance for these figures may have to be made, due to the prevalent habit of exaggerating dimensions which is a besetting sin of native artists. The specimen here figured flowered at Kew, and doubtless represents only a small state of the plant (as is to be expected in the first evolution of leaves and flowers from a root weakened by transport from India). The height of the flowering peduncle of the Kew plant was nine inches, and its diameter three-fourths of an inch.

December 1st, 1893.

The tube of the spathe was two inches in diameter, and its height about three inches, the limb rather longer. The total height of the spadix eight inches, and diameter of the golden yellow appendage one and a quarter inch. The whole inflorescence equals the appendage in length, and its male portion, which is yellow, is as long as the green female. (The ovaries in the Calcutta drawing are yellow with red bases.)

A. oncophyllus belongs to a small group of the genus with very short styles, and a spadix much exceeding the spathe, which contains five species, all natives of Burma (to which country the Andamans botanically belong) and the Malayan Peninsula. All of these are described for the first time in the recently published nineteenth part of "The Flora of British India." Along with *A. oncophyllus* Dr. King has sent, also from the Andamans, tubers of another magnificent species found by Dr. Prain, which is closely allied to *A. campanulatus* (*A. virosus*, N. E. Br. Tab. t. 6978), and is the *A. Rex*, Prain (*Fl. Brit. Ind.* vii. 514), which is figured by Blume in his *Rumphia* (i. t. 32, 33), and there wrongly referred to the Indian *A. campanulatus.*

A. oncophyllus was discovered by Dr. Prain, Curator of the Herbarium of the Royal Gardens, Calcutta, on the Cocos Islets, a group of the Andaman Archipelago, early in the present year. Tubers of it were received at Kew from Calcutta in March, and flowered in the following May. Mr. Watson informs me that its odour was the most vile of any of its notoriously evil-smelling congeners, and that visitors rushed through the "Begonia house," in which it was exhibited, to escape from it.—*J. D. H.*

Fig. 1, spadix; 2 and 3, stamens; 4, ovary; 5, the same cut vertically, and 6, transversely; 7, ovule;—*all enlarged*:—8, flowering scape and inflorescence, *greatly reduced.*

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Tab. 7328.

ABUTILON VITIFOLIUM.

Native of Chili.

Nat. Ord. Malvaceæ.—Tribe Malveæ.

Genus Abutilon, *Gærtn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 204.)

Abutilon *vitifolium*; arbuscula, ramulis crassiusculis petiolis foliis subtus pedunculis calycibusque pube floccoso niveo tomentosis, foliis amplis orbiculari-ovatis profunde cordatis breviter 5-lobis et multi-lobulatis supra rugosis, lobis ovatis subacutis crenatis, nervis subtus elevatis, floribus 2–3½ poll.-diam. albidis in pedunculos axillares subcorymbosis, calycibus herbaceis irregulariter figgis, petalis late cuneato-orbiculatis striatis, staminum phalangibus petalis multo brevioribus, antheris parvis croceis, ovario hirsuto, stylis ad 10 stigmatibus oblongis.

A. vitifolium, *Presl. Rel. Hænk.* vol. ii. p. 116. *Lindl. Bot. Reg.* vol. xxvi. (1840). *Misc.* p. 52, n. 114; et vol. xxx. (1844), t. 57. *C. Gay, Fl. Chil.* vol. i. p. 332. *Masters, Gard. Chron.* 1889, vol. ii. p. 156, f. 21.

Sida vitifolia, *Cavan. Ic.* vol. v. t. 428. *DC. Prodr.* vol. i. p 471. *Hook. & Arn. Bot. Beech. Voy.* p. 12.

The earliest notice of this strikingly handsome plant as being in cultivation in Europe was in 1848, by Dr. Lindley, in the Botanical Register cited above. It is there stated to have been introduced by Captain Cottingham, a zealous Irish horticulturist, who raised it in 1836, and sent a plant to Mr. Mackay, Curator of the College Botanic Gardens, Dublin. Mr. Mackay informed Dr. Lindley that it had stood for three years in the College Gardens, in a south border, without protection of any kind, and flowered profusely; adding that it formed a handsome small tree, about six feet high, and that it probably grows to a much greater size in Chili, which is its native country. In 1844 Lindley published a magnificent plate of it from a drawing by Miss Drake, and says of it that with us (alluding no doubt to the Gardens of the Royal Horticultural Society) it does not prove fit for the open ground, and that it should be planted in a large tub, or in the ground in a conservatory. Nothing further seems to have been heard of it as a garden plant till Mr. Gumbleton, in 1889, sent a specimen from

his garden at Belmont, near Cork, to Dr. Masters, who figured it as var. *alba*, being unaware that the flowers are (though described by Cavanilles as red) normally white, changing to pale azure as they fade. As observed in "Genera Plantarum," *A. vitifolium* differs from the normal Abutilons in the clavate branches of the style, which are shortly stigmatic.

For the specimen figured I am indebted to Mr. Morris (Assistant Director of Kew) who informs me that he saw it "in the interesting garden of Jonathan Rashleigh, Esq., at Menabilly, Cornwall, on the 26th April last. The plant was a large bush 8 to 10 ft. high, and completely covered with beautiful white flowers. Mr. Rashleigh knew it as *Abutilon Veitchianum*, but at my request he sent a specimen to Kew for determination, and also to show the luxuriant character of the plant in Cornwall." It is a native of Chili, from the latitude of Concepcion to that of Chiloe. Mr. Watson informs me that it is a short-lived plant under cultivation.—*J. D. H.*

Fig. 1, Stellate hairs; 2, stamens; 3, ovary :—*All enlarged.*

M.S del. J.N.Fitch lith

Tab. 7329.

ERIA Meirax.

Native of the Himalaya Mts. and Burma.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Eria, *Lindl.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 509.)

Eria (Porpax) *Meirax*; pumila, pseudobulbis aggregatis depresso-globosis fere disciformibus brunneis vaginis pellucidis reticulatis arcte appressis tunicatis, foliis binis parvis ad basin pseudobulbi post flores enatis oblongis oblongo-lanceolatisve coriaceis medio sulcatis, floribus apicibus pseudobulborum solitaris brevissime pedicellatis decurvis, bracteis oblongis aristato-acuminatis, sepalis in tubum incurvumbasi gibbosum glaberrimum 3-lobum confluentibus, lobis æqualibus, petalis late ovatis acutis, petalis tubo calycino inclusis oblongo-spathulatis acutis, labello stipitato, lamina orbiculari apice contracto obtuso, columna brevissima.

E. Meirax, *N. E. Brown in Gard. Chron.* (1880), vol. ii. p. 603. *Hook. f. Fl. Brit. Ind.* vol. vi. p. 786.

E. Elwesii, *Reichb. f. in Gard. Chron.* (1883), vol. i. p. 402.

Cryptochilus Meirax, *Reichb. f. in Trans. Linn. Soc.* vol. xxx. p. 148.

A very singular little orchid, discovered by the Rev. Mr. Parish in the Moulmein Hills, Tenasserim, and subsequently found in the Sikkim Himalaya by Mr. Elwes. It belongs to a very small section of *Eria*, of which Lindley constituted a genus, calling it *Porpax* (from a Greek word signifying the handle of a shield, the application of which is not obvious), and of which there are now five known Indian species, distinguished by their small size, depressed 2-leaved pseudobulbs clothed with reticulate sheaths, small sessile leaves, one or few flowers situated on the top of the pseudobulb, and very short column. Reichenbach referred *E. Meirax* and two others of the group to Wallich's genus *Cryptochilus*, to which, indeed, in the structure of the pollen and perianth they bear a very strong resemblance. Wight gave to one Malabar species the generic name of *Aggeianthus*, from the resemblance of the perianth to a vase; and to another *Lichenora*, from the depressed flat pseudobulbs, recalling a *Lichen* in appearance.

December 1st, 1893.

In the "Flora of British India" I have stated that *Eria* is perhaps the most polymorphous genus of Orchids, and yet is very difficult of division into groups with defined limits. Of these there are thirteen in India, embracing ninety-three species. Altogether one hundred and fifty species are described, upon which twenty genera have been established.

E. Meirax was received at Kew from Mr. Elwes in 1881, and has flowered annually on a block of wood in the tropical house. The specimen here figured was communicated by Sir Charles Strickland, Bart., of Hildenley Hall, Yorkshire, in 1891. It flowered in December, 1892, and formed its leaves in the following May.—*J. D. H.*

Fig. 1, Pseudobulbs; 2 and 3, flowers; 4, flower with half the calyx removed; 5, petal; 6, lip; 7, column; 8 and 9, anther; 10, pollinia:—*All enlarged.*

Vincent Brooks, Day & Son Imp

Tab. 7330.

EULOPHIA Zeyheri.

Native of South Africa.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Eulophia, *Br.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 535)

Eulophia *Zeyheri*; foliis post anthesin enatis elongato-ensiformibus acuminatis, scapo remote vaginato apice florifero, floribus confertim racemosis subsessilibus amplis aureis labello intus purpureo, sepalis oblongis acuminatis acutis petalisque paulo minoribus erecto-patulis, labello basi breviter obtuse calcarato columnæ basi adnato, lobis lateralibus parvis rotundatis erectis terminali amplo rotundato concavo, disco inter lobos laterales cristis 2 tomentellis apicibus uncinatis ornato, lobi terminalis disco setis erectis sparso, columna crassiuscula concava, anthera parva obovoidea, polliniis late oblongis ope stipitis latæ glandulæ disciformi affixa.

E. bicolor, *Reichb. f. & Sond. ex Reichb. f. in Flora*, vol. xlviii. (1865), 186, *partim* (*non Blume*).

The name *Eulophia bicolor* given to this plant by Reichenbach is an unfortunate one, applying to four very distinct plants. First by Blume in 1857 (*Orchid. Archipel. Ind.* p. 181, t.) to a Timor species; then in 1857 by Dalzell (*in Hook. Kew Journ. Bot.* vol. iii. p. 343) to an Indian; and lastly by Reichenbach and Sonder (in *Flora*, xlviii. p. 186) to two species, an Eastern and a Western African, supposed by the authors to be the same. It is very unlike the German Orchidologist to have overlooked Blume's excellent figure and elaborate description, but so it is, and Blume's name must stand for the Timor plant, though it has been placed by Mr. Ridley in *Cyrtopodium** (*Journ. Linn. Soc.* vol. xxi. p. 472). With regard to Dalzell's *bicolor*, I have included it under *E. nutans* in the Flora of British India.

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* In doing this, Mr. Ridley followed the "Genera Plantarum," where *Cyrtopera* (a section of *Eulophia*) is erroneously referred to *Cyrtopodium*. A full account of the course agreed upon by Prof. Oliver, Mr. Bolus, Mr. N. E. Brown and myself, of removing *Cyrtopera* from *Cyrtopodium*, and uniting it together with *Lissochilus* to *Eulophia* is given in Bolus's "Orchids of the Cape Peninsula" (offprint from Trans. S. Afr. Phil. Soc. vol. v. part i. (1888), p. 104) *Eulophia* is strictly an Old World genus; and all the *Cyrtopodia* are American.

December 1st, 1893.

The African *E. bicolor* is founded primarily on an Angolan plant of Welwitsch, under which its authors included a Natal one, the subject of the present plate, and which I have named *E. Zeyheri*, after its discoverer, the German collector Zeyher; and the Angolan one may appropriately bear the name *E. Welwitschii*, after its discoverer. Though very much alike in many characters, of the flower especially, *E. Welwitschii* may be at once distinguished by its closely sheathed scapes, long racemes of flowers, and many-nerved leaves two and a half inches broad. In *E. Zeyheri*, on the other hand, the leaves hardly an inch broad are 3-nerved, and the flowers are arranged in subcorymbose head, as in *E. ensata*, Lindl. (*Bot. Reg.* t. 1147), and other species from the same region of Africa. In fact, *E. Zeyheri* is much more nearly allied to *E. ensata* than to *E. Welwitschii*, differing chiefly in the much larger flowers and orbicular (not oblong) midlobe of the lip.

I am indebted to my friend, H. J. Elwes, Esq., F.S.L., of Colesbourne, Andoversford, Gloucestershire, for the specimen here figured, which flowered with him in April of this year, and perfected its leaves in the following June. It is a native of Natal and British Caffraria.

Descr.—A stout glabrous tuberous-rooted Orchid, 12–18 inches high, flowering before leafing. *Leaves* as long as the scape, narrowly lanceolate, acuminate, plaited, with three principal nerves. *Scape* as thick as a goose-quill, sparingly sheathed. *Flowers* crowded at the top of the scape, pale golden-yellow, with dark purple side lobes and base of the lip. *Sepals* one and a half inch by two-thirds of an inch and rather smaller petals oblong acuminate. *Lip* adnate to the base of the column, and produced behind into a short obtuse spur; side lobes small, rounded, erect; midlobe large orbicular concave with numerous soft bristles on the disk; two tomentose ridges are situated between the side lobes, each ending in a hook. *Column* broad, hollow in front. *Anther* rather small.—*J. D. H.*

Fig. 1, Lip and column; 2, lip; 3, column and spur of lip; 4, anther; 5, pollinia:—*All enlarged.*

M S del. J.N Fitch lith.

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Tab. 7331.

PROTEA RHODANTHA.

Native of the Transvaal.

Nat. Ord. Proteaceæ.—Tribe Proteeæ.

Genus Protea, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 169.)

Protea *rhodantha*; fruiticulus nanus erectus glaber, caule simplici brunneo maculato basi tuberoso, foliis sessilibus lineari-oblongis apice rotundatis immarginatis basi angustatis venosis, capitulo terminali amplo 3-poll. diam., latissime turbinato glabro basi in pedunculum brevem obconicum bracteolis parvis dense imbricatis viridibus brunneo marginatis tectum repente attenuato, bracteis patulis, inferioribus latissime obovatis obtusis roseis viridi costatis marginatisque, intimis sensim longioribus oblongis concavis apice rotundatis pulchre roseis, calycis semipollicaris tubo inferne glabro marginibus superne lobisque sericeo-pilosis, antheris ½ poll. longis rubris, stylo gracili recto, stigmato-elongato gracili cylindraceo.

I have vainly attempted to identify this beautiful plant with any of the sixty-six African Proteas described in De Candolle's Prodromus by the late Dr. Meissner, or with any contained in the rich herbarium of Kew. It belongs to Meissner's first section of the genus "Caulescentes," with erect stems and terminal heads, and to the subsection in which the involucral bracts are not bearded; but none of the species described under this section, nor indeed has any described species of the genus been discovered in a locality nearly so far North as the habitat of *P. rhodantha*, namely, Pilgrim's Rest, on the west of the Transvaal Drakensberge, in lat. 25° S. and long. 31° E. As regards this Drakensberge region, Mr. Bolus informs me that it abounds in rocky defiles where *Proteaceæ* are a marked feature in the landscape, and that it has been very imperfectly explored. When it is considered that the same mountain range extends into the hitherto botanically unexplored Matabele Land, it is obvious that a multitude of new plants remain to reward the first botanical traveller who visits it.

With regard to *Protea* itself, the genus cannot be satis-

factorily worked up, except from the living plants in South Africa, and by a botanist who will devote some years to their study. Herbarium specimens are insufficient for the purpose; Museum space is necessary for the accommodation of such portions of each species as would afford materials for study, and these should be accompanied by photographs of the whole plant from which they are taken. Now that the vegetation of South Africa has been so well harvested in the main, it is quite time that local botanists should take up special branches, as Mr. Bolus has the Orchids; and I can imagine no more interesting field of research amongst the hard-wooded plants of the S. African Colonies than the *Proteaceæ* afford.

Protea rhodantha was raised at Kew from seeds presented, with others, by W. J. Horn, Esq., of Balham, in 1886. It flowered after attaining a height of 18 inches, in May of the present year.—*J. D. H.*

Fig. 1, Flower; 2, base of larger perianth-segment; 3, upper part of ditto with anthers; 4, pistil; 5, section of ovary with ovule:—*All enlarged.*

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* Read kansuense.—J. G. B.

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